Risk Assessment and Management - European Training Programme (Risk ASSETs)

Development of an Administrative Framework for a Risk Assessment and Management - European Training Programme
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EXECUTIVE SUMMARY

The Risk Assessment and Management – European Training programme (Risk ASSETs™) project aims to improve health risk assessment training in Europe by developing a Europe-wide health risk assessment training programme. This report presents the outcomes of the development of the administrative framework for running a health risk assessment training course in Europe and constitutes deliverable 11 of the Risk ASSETs™ project.

Information was gathered to identify elements of best practice that could be incorporated into the proposed administrative training framework. This included:

- undertaking a review of the administration of selected existing professional training schemes in Europe
- considering non-technical training needs identified in Work-package 4
- engaging in discussions concerning accreditation of health risk assessors in Europe and
- taking into consideration existing academic and professional training structures in Europe.

This document describes the administrative framework and how the Risk ASSETs™ programme is intended to operate. It also describes the structure and roles and responsibilities of those running the programme, including whether there is a need for a programme board, an academic committee, and a quality control and assurance committee, an office charged with the day-to-day running of the programme, and the involvement of training providers and universities charged with awarding the credits towards the Master’s degree in Health Risk Assessment and Management.

Overall, Risk ASSETs™ has considerable potential to improve the availability of health risk assessment training in Europe and deliver a number of substantial benefits, including:

- improving the availability and calibre of assessors of chemical and electromagnetic field health risks in Europe
- promoting consistency in health risk assessments undertaken across Europe
- establishing a European-based health risk assessment training scheme, which can readily respond to European training needs, whilst having the capacity to incorporate national or regional considerations
- enabling trainees to have access to a wide breadth of high-quality teaching in health risk assessment from across Europe that is set against an established benchmark
- enabling trainees to gain a wider cultural experience
- facilitating the development of health risk assessment professional networks across Europe (both amongst training providers and trainees) that, in turn, can facilitate research and assist in identifying future employment opportunities
- promoting inter-institutional cooperation and learning, thereby enhancing the quality of health risk assessment training available across Europe
supporting Member States to comply with relevant risk assessment requirements in European Union (EU) legislation and thereby improves the safety and security of EU citizens and

facilitating the improvement of public health protection through application of health risk assessment by well trained health risk assessors.

For these benefits to be realised, a number of challenges will need to be addressed to implement this training programme. Principally, a collaborative framework would have to be developed between universities involved in the programme to award credits, a suitable funding mechanism would need to be identified and developed, stakeholders would need to be engaged, and a high-level of quality control and assurance would need to be applied by all training providers. However, with good cooperation and leadership, these challenges can be addressed and the substantial benefits of a Europe-wide health risk assessment training programme realised.
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1 INTRODUCTION

1.1 Introduction

The Risk Assessment and Management – European Training Programme (Risk ASSETs™; agreement number 20081103) project aims to improved health risk assessment training in Europe by developing a proposed European health risk assessment training programme. The project has four main work streams as described in the contract:

- an assessment of health risk assessment training needs and exploring means of promoting participation in health risk assessment training
- development of competencies for health risk assessors in Europe and a training curricula based on the competencies
- development of the technical content of a health risk assessment training programme at a foundation, intermediate and advanced level and
- development of a proposed administrative framework for the training programme.

The scope of the Risk ASSETs™ project is non-occupational chemical and electromagnetic field (non-ionizing radiation) health hazards in the context of environmental pollution and consumer products. Currently, it excludes consideration of occupational health risks and health risks arising from food, and ionizing radiation.

This report presents the outputs from Work-package 10, which looks at the development of an administrative framework for a health risk assessment training programme in Europe.

1.2 Aim and objectives

The aim was to develop and propose an administrative framework for delivery of a harmonised health risk assessment training scheme in Europe. The specific objectives of the work-package were to:

- review the administration of existing professional development training schemes in Europe
- identify necessary aspects for a health risk assessment training programme
- engage in discussions with other parties concerning accreditation (or other similar initiatives) of health risk assessors in Europe
- develop a proposed administrative framework for a health risk assessment training programme

Full details of the work-package 10 specification are presented in Appendix A.
1.3 Structure of report

This report describes the outputs of Work-package 10 (Deliverable 11). Section 2 describes the methodological approach taken to develop an administrative framework; Sections 3 to 8 describe the proposed administrative framework, and Section 9 discusses the potential accreditation of health risk assessors in Europe. The review of administrative frameworks is presented in Appendix D.
2 METHODOLOGY

2.1 Introduction

The aim of this work-package is to develop and propose an administrative framework for running a health risk assessment training programme in Europe. Information was gathered to identify elements of best practice that could be incorporated into the proposed administrative training framework. This included:

- taking into consideration existing academic and professional development structures in Europe
- undertaking a review of selected professional development training schemes in Europe
- considering non-technical training needs identified in Work-package 4
- engaging in discussions concerning accreditation of health risk assessors in Europe, and

This evidence base was collated and used as a basis to identify key components of best practice that can be incorporated into the proposed administrative training framework. The methodological approach described in more detail below.

2.2 Developing an evidence base for the administrative framework

2.2.1 Review of existing training schemes

A review of existing professional training schemes was undertaken to establish an evidence base for the Risk ASSETs (™) programme. The schemes taken forward for review were selected because they were relevant to the field of health risk assessment (e.g. focused on epidemiology, toxicology, risk management) and they provided a framework for professional development for which information on the administrative framework was readily available. The schemes identified and selected were:

- Chartered Institute for Environmental Health, United Kingdom (UK)
- European Programme for Intervention Epidemiology Training
- European Register of Toxicologists
- Institute of Risk Management, UK
- Training of Public Health Specialists and Practitioners, UK

Each administrative framework was reviewed on the basis of available information and using a checklist of key questions and areas for consideration (Appendix B). The relevant aspects of each training scheme were then summarised and presented in a short report format (Appendix D), highlighting key areas and administrative considerations.

2.2.2 Non-technical training needs of health risk assessors in Europe

Work-package 4 (Risk ASSETs, 2012a) considered the non-technical health risk assessment training preferences of health risk assessors in Europe (Appendix C).
These training preferences were taken into account in developing the administrative framework.

2.2.3 Engagement in activities concerning the accreditation of health risk assessors in Europe
During the period of the project (May 2009 to October 2011), the Risk ASSETs™ project partners engaged in discussions and activities regarding the formal accreditation of health risk assessors in Europe. These activities included:

- responding to a DG SANCO consultation on ‘Risk Assessment Advanced Training (RAAP) Guidelines (June 2009)
- attending a DG SANCO ‘Risk Assessment Training Meeting’ (21 June 2010)
- responding to a DG SANCO consultation on ‘Guidelines for an Advanced Training Program in Human Health Risk Assessment of Chemicals (RAAP)’ (Oct 2010)
- attending a DG SANCO ‘Working Group on Risk Assessment Training Capacity’ meeting, Brussels (14 February 2011)
- attending a European Committee for Standardization (CEN) ‘Feasibility Study meeting on ‘Accreditation of Human Health Risk Assessors in the Field of Chemicals’, Vienna, Austria (14 March 2011).

2.2.4 Existing Academic Structures and Frameworks within Europe
As with any training programme, Risk ASSETs™ needs to take into consideration existing academic frameworks within Europe. To this effect, attention was given to the use of the European Credit Transfer and Accumulation Scheme (Education and Culture DG, 2009) and work by the European Universities Association on developing joint Masters programmes in Europe (EUA, 2004 and 2006). Key areas identified of relevance to Risk ASSETs™ were taken into consideration in developing the administrative framework.

2.3 Development of the administrative framework
The Risk ASSETs™ administration framework was developed to meet the non-technical training needs of health risk assessors. This work is based on elements identified from the reviews of existing professional development schemes (Appendix D), which have been integrated with existing academic structures and frameworks within Europe (Section 2.2.4). Consideration was also given to initiatives that focused on the accreditation of health risk assessors in Europe, these initiatives only began to take shape towards the end of the project. As such, consideration focused on how the Risk ASSETs™ and accreditation proposals could complement one another in the future, rather than presenting a fully integrated proposed administrative framework.
3  LEARNING FRAMEWORK

3.1  Introduction

The development of a suitable and fit-for-purpose administrative framework for running a Europe-wide Risk Assessment and Management – European Training Programme is essential to facilitate learning and ensure that the training programme operates effectively and achieves its’ aims and objectives. Within Europe, there are a number of models for professional development, which include the traditional academic model of learning (e.g. working towards a recognised qualification such as a Master’s degree) and a range of professional training schemes, which often combine an element of academic learning, with work-based knowledge and skills acquisition, leading to formal professional recognition.

An administrative framework has to take into account a number of practical considerations (Risk ASSETs, 2012a), not least that the majority of trainees will already be working full-time, and so require a training model that is sufficiently flexible to allow them to manage their work commitments alongside the need to ensure their continued professional development. Other important considerations are presented in Appendix C and include the need to gain wider experience in health risk assessment, means of funding training, and ensuring geographical availability of the training throughout Europe.

This section provides an overview of the programme concept and the learning framework, and provides a rationale for the approach taken. Specific elements of this concept are subsequently described in more detail in the sections that follow.

3.2  Risk Assessment and Management – European Training Programme Concept

3.2.1  Aim and objectives
The aim of the Risk Assessment and Management – European Training (Risk ASSETs™) programme is to operate a Masters-level health risk assessment training programme accessible across Europe to facilitate the development of professionals with adequate skills to assess health risks in accordance with European and national legislative and policy requirements, and operate to a high standard of public health practice. The main objectives of the programme are to:

- develop health risk assessment training capacity at national and European level
- provide an educational framework for the professional development of health risk assessment scientists
- facilitate the development of a network of health risk assessment scientists
- contribute to the wider professional development of health risk assessment scientists
The aim and objectives of the programme would be further refined as the programme is implemented and developed.

3.2.2 Overall programme concept

The overall concept is to develop a modular training programme, consisting of a range of one-week modules that professionals are able to attend whilst maintaining their full-time employment commitments. The training would consist of a common, core training in health risk assessment and then, as they progress through the training programme, specialise in particular areas of health risk assessment according to their needs. This concept is illustrated in Figure 3.1.

![Figure 3.1 Risk Assessment and Management – European Training Programme Learning and Professional Development Model](image-url)
The training would be provided by a network of training providers, each delivering one or several of the one-week modules that make up the training programme, or are accredited under the programme.

The approach based on a network of training providers across Europe is considered the best approach, as currently there are very few training providers who have the expertise and experience to deliver the full range of Risk ASSETs™, or similar, modules.

3.2.3 Study load and module structure
The study load of the modules is expressed using the European Credit Transfer and Accumulation System (ECTS; 1 credit = 25–30 hrs of learning). Each module in the Risk ASSETs™ programme will be equivalent to 3 ECTS credits (75–90 hrs of learning). This is achieved through a combination of pre-course reading and exercises, course attendance, self-directed study and a post-course assessment (Table 3.1).

| Table 3.1 Teaching methods in the Risk Assessment and Management – European Training programme |
|-----------------------------------------------|---------------|
| Pre-course reading/assessment:                | 10 hrs         |
| Lectures, practicals, tutorials & work on case-studies: | 40 hrs         |
| Self-directed study:                         | 15 hrs         |
| Post-course assessment:                      | 10 hrs         |
| Total:                                        | 75 hrs         |

It is intended that this model of teaching will enable participants to achieve a common basic understanding before attending the course, through the pre-course reading and assessment, have an opportunity to apply what is learnt on the course, through the group work on case-studies, and then have an opportunity to further develop their individual understanding via the post-course assessment.

A participant in the training programme will have the option of taking an individual module as a stand-alone course, or working towards a Masters in Health Risk Assessment, for which 60 ECTS credits are required. The full Masters would be achieved through completing 10 modules (30 ECTS credits) and undertaking a dissertation focusing on a specific aspect of health risk assessment (30 ECTS credits, 20 weeks of study). The pre- and post-course assessment exercises will be compulsory for all trainees working towards a Masters, but will be optional for all other students. Those completing the pre- and post-course assessment exercises will be awarded 3 ECTS credits (75 hrs of learning), whereas those only attending the module will be awarded 1.5 ECTS credits (37.5 hrs of learning).

3.2.4 Target audience
The Risk ASSETs™ programme would be aimed principally at health risk assessor who are in full-time employment, who have varied professional backgrounds and are qualified to a graduate level.
3.2.5 Roles and responsibilities
The principal roles and responsibilities involved in the operation of the Risk ASSETs\(^{\text{TM}}\) programme are presented in Table 3.2. These are further expanded upon in Section 4.

Table 3.2 Principal roles and responsibilities in the Risk Assessment and Management – European Training (Risk ASSETs\(^{\text{TM}}\)) Programme

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
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<tbody>
<tr>
<td>Programme Board</td>
<td>Oversee all aspects of the Risk ASSETs(^{\text{TM}}) programme</td>
</tr>
<tr>
<td>Academic Committee</td>
<td>Development of technical aspects of Risk ASSETs(^{\text{TM}}) curriculum and training materials</td>
</tr>
<tr>
<td>Quality Control and Assurance Committee</td>
<td>Ensuring implementation of the Quality Policy and common educational standards across the Risk ASSETs(^{\text{TM}}) programme</td>
</tr>
<tr>
<td>Risk ASSETs(^{\text{TM}}) Office</td>
<td>Day-to-day running of the Risk ASSETs(^{\text{TM}}) programme</td>
</tr>
<tr>
<td>Training Providers</td>
<td>Delivery of Risk ASSETs(^{\text{TM}}) training modules</td>
</tr>
<tr>
<td>Core Universities</td>
<td>Awarding educational credits for training undertaken and the Masters degree in Health Risk Assessment</td>
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</tbody>
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3.2.6 Education level
The Risk ASSETs\(^{\text{TM}}\) programme is a Masters-level qualification. This qualification would be awarded on achievement of a minimum of 60 ECTS credits accrued by undertaking Risk ASSETs\(^{\text{TM}}\) modules, or other accredited modules, undertaking a dissertation (Section 3.4) and the recognition of acquired prior learning (Section 3.5).

3.2.7 Duration and mode of study
All trainees would undertake the programme on a part-time basis, although there would be the potential for some trainees to participate in a fast-track training route (Section 3.5). The amount of time allowed for a trainee to complete the Risk ASSETs\(^{\text{TM}}\) programme would need to be agreed between the Core Universities.

3.2.8 Entry requirements
The minimum entry requirement for attendance on a Risk ASSETs\(^{\text{TM}}\) module would be a graduate level qualification in a science or engineering based qualification, or an equivalent level of experience. This is to ensure that those attending the course have the required general background to study to Masters level. For some modules, some prior knowledge and/or skills may be specified, particular where the module builds on understanding and learning developed in a previous module. The entry requirements would be reviewed periodically by the Academic Committee.

3.2.9 Applications
Applications to attend modules would be made to the Risk ASSETs\(^{\text{TM}}\) Office, who would be responsible for coordinating the applications for all modules under the Risk ASSETs\(^{\text{TM}}\) programme. This would enable central coordination of applications throughout Europe and ensure application procedures are consistent for all modules. Close liaison with the training provider would be necessary throughout this process.
3.2.10 Acquired prior learning

For some participants in the Risk ASSETs™ programme, acquisition of the required knowledge and skills set out in the Knowledge and Skills Framework (KSF; Risk ASSETs, 2012b) may have occurred through other training opportunities and/or via on-the-job learning as part of their employment. Indeed, it was highlighted in work-package 4 that on-the-job learning is a principal means of developing knowledge and skills in health risk assessment (Risk ASSETs, 2012a). It may therefore be unnecessary for an individual to undertake all aspects of the Risk ASSETs™ training programme if the acquired prior learning of aspects of the KSF can be demonstrated. To address this a system of accreditation would be developed in order to recognise prior learning. This would have to be done in conjunction with the Academic Committee and the Core Universities and would be limited to a proportion of the total learning requirements of the Risk ASSETs™ programme (e.g. 20%). Assessment of acquired prior learning would be via submission of a portfolio of evidence by the individual concerned, which would then be evaluated by the Academic Committee (or a sub-group thereof). The portfolio of evidence would demonstrate how the individual has met the learning requirements through previous training, work experience or other means.

3.3 Scientific and technical content

3.3.1 Disciplines involved

The academic disciplines involved in the training programme would include:

- environmental science (including environmental chemistry)
- environmental epidemiology
- exposure assessment
- health risk assessment
- risk communication
- risk management
- toxicology

3.3.2 Taught modules

The Risk ASSETs™ programme consists of an initial foundation course in the principles and practice of health risk assessment, risk management and communication (Level 1). This is then followed by intermediate and advanced modules in the science underlying health risk assessment (e.g. toxicology, epidemiology, environmental science, etc.) and specific aspects of health risk assessment (e.g. exposure assessment, risk characterisation, advanced principles of health risk assessment).

An initial list of proposed modules is presented in Table 3.3. This may be developed further as the programme evolves.
Table 3.3 Modules for the Risk Assessment and Management – European Training Programme

<table>
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<td>Health Risk Assessment, Management and Communication: Principles and Practice (1) and (2)</td>
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<tr>
<td>Fundamentals of Toxicology for Health Risk Assessment</td>
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<tr>
<td>Advanced Principles of Toxicology for Health Risk Assessment</td>
</tr>
<tr>
<td>Fundamentals of Epidemiology for Health Risk Assessment</td>
</tr>
<tr>
<td>Advance Principles of Epidemiology for Health Risk Assessment</td>
</tr>
<tr>
<td>Environmental, Personal and Human Biological Monitoring for Health Risk Assessment</td>
</tr>
<tr>
<td>Fundamentals of Human Exposure Assessment</td>
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<tr>
<td>Advance Principles of Human Exposure Assessment</td>
</tr>
<tr>
<td>Health Risk Assessment of Electromagnetic Fields</td>
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<tr>
<td>Implications for Risk Management and Communication</td>
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<tr>
<td>Risk Characterisation</td>
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</table>

Detailed content for a core set of modules has been developed as part of the Risk ASSETs™ project and is presented elsewhere (Risk ASSETs, 2012c).

3.4 Dissertation

In order to fulfil the requirements of a Master’s in Health Risk Assessment it is necessary to undertake a dissertation. This would need to meet a number of requirements:

- a project of 20 weeks duration full-time (or equivalent part-time) focused on an aspect of health risk assessment
- be supervised by two supervisors with suitable experience in health risk assessment and familiar with Risk ASSETs™
- preparation and submission of the dissertation (15,000–20,000 words long)

Dissertations could be undertaken through the trainees existing place of work, independent of their place of work (e.g. via a local university) or via a placement (Section 3.5).

3.5 Placements

Placements will be an opportunity for trainees to broaden their experience by working in an environment other than their normal work environment, whilst completing their independent study. This helps address the identified need for opportunities to gain a wider experience (Risk ASSETs, 2012a). Placements involve undertaking a piece of work which would form the basis for the dissertation. Opportunities for placements would be sought from academia, industry, regulatory agencies, government departments/agencies and consultancies. The placements would need to fulfil a number of criteria, including:
• be of 20 weeks duration full-time, or equivalent part-time
• be focused on one project, or several case-studies, suitable to form a dissertation for a Masters
• be jointly supervised by an on-site mentor and an academic mentor, both of whom have suitable experience in health risk assessment, and are familiar with the dissertation requirements of the Risk ASSETs\(^{TM}\) training programme
• adequate provision of suitable materials (e.g. desk space, computer access, consumables, etc.) to enable the trainee to undertake the project without additional cost to the trainee
• allow the trainee to gain a broader awareness of the health risk assessment activities undertaken within the organisation

The non-project arrangements and expenses of the trainee (e.g. accommodation, food, etc.) would be expected to be met either by the trainee, the trainee’s employer, or through a grant/bursary or other funding mechanism. Placements would only need to be sought once trainees had undertaken the academic aspect of the training programme.

### 3.6 Awarding of qualifications

A Masters in Health Risk Assessment and Management would be awarded by one of the ‘Core Universities’, in close collaboration with the Risk ASSETs\(^{TM}\) Office. There may be potential to explore whether a system of interim qualifications could be established to provide a step-wise progression of trainees towards a Masters-level qualification. This could be linked with accreditation requirements for health risk assessment, if these are developed. If not, then a system of post-graduate certificates and post-graduate diplomas could be explored. However, not all European universities use such a system of post-graduate certificates and diplomas and, hence, this would require further consideration before implementation.

### 3.7 Fast-track training progression

Whilst the Risk ASSETs\(^{TM}\) programme is primarily aimed at those already employed in health risk assessment, who would generally be expected to undertake a minimum number of modules per year. This would be accompanied by a fast-track training route for trainees who are able to commit greater periods of time to training. Having a fast-track training route would result in a number of substantial benefits including:

• ensuring a core group of trainees work through the whole Risk ASSETs\(^{TM}\) programme on a regular basis
• ensuring a steady stream of qualified health risk assessors throughout Europe
• facilitating demand for modules and ensuring modules are available for non-fast track trainees

Challenges in establishing a fast-track route for health risk assessment training include:
• identifying suitable funding mechanisms to enable participation in a fast-track training route. In particular, it is likely trainees would require assistance in meeting the costs of travel and subsistence associated with a pan-European modular training programme undertaken in a relatively short space of time

• ensuring availability of modules to enable trainees to complete the full Risk ASSETs™ programme

• if operates from one institution, ensuring equity of access to the fast-track training scheme
4 ROLES AND RESPONSIBILITIES

4.1 Introduction

The roles and responsibilities within the training scheme need to be clearly established to ensure the scheme functions. It is proposed that the Risk ASSETs\textsuperscript{TM} programme would operate from a main Risk ASSETs\textsuperscript{TM} Office, with a number of committees to oversee areas of the operation of the Risk ASSETs\textsuperscript{TM} programme. The main roles and responsibilities within the training programme would be:

- Programme board – responsible for the overall operation and development of the Risk ASSETs\textsuperscript{TM} programme
- Academic committee – responsible for the technical and scientific content of the training programme
- Quality control and assurance committee – responsible for operating the quality control and assurance system and ensuring common standards across the programme
- Risk ASSETs\textsuperscript{TM} Office – responsible for the day-to-day operation of the Risk ASSETs\textsuperscript{TM} programme
- Training providers – responsible for the development of module specific training materials and delivery of individual Risk ASSETs\textsuperscript{TM} modules

A detailed description of the responsibilities of each of these roles is presented below. For each of the Committees, a detailed specification of their remit and mode of operation would need to be developed.

4.2 Programme Board

The Programme Board would be responsible for the overall strategic operation of the Risk ASSETs\textsuperscript{TM} training programme and for providing overall leadership and direction to the programme and its development. The Programme Board would consist of:

- a chairperson
- representatives of the Academic Committee
- representatives of the Core Universities
- representatives of Specialist Training Providers
- a health risk assessor/trainee representative
- Risk ASSETs\textsuperscript{TM} Office representative(s)
- health risk assessor employer representatives
- other stakeholder representatives (e.g. DG SANCO, EC Committees, non-governmental organisations)

The responsibilities of the Programme Board would include:

- taking overall responsibility for the strategic development and operation of the Risk ASSETs\textsuperscript{TM} programme
periodically reviewing the programme’s aims and objectives and updating them accordingly

4.3 Academic Committee

The Academic Committee would be responsible for the scientific and technical development of the Risk ASSETs™ programme. Their responsibilities would include:

- overall responsibility for development of the curriculum and module content
- periodically reviewing the curriculum and revising it to take into consideration comments from the module evaluations, changes in regulatory practice and developments in the science and practice of health risk assessment
- set and periodically review entry requirements for modules
- develop and update pre- and post-course assessment guidelines
- assessing applications by training providers for accreditation to operate a module under the auspices of the Risk ASSETs™ training programme
- assessing applications for accreditation of acquired prior learning
- working with the ‘Quality Control and Assurance Committee’ to define common standards for delivery and assessment of the modules
- defining academic criteria for the dissertation and its assessment

The Academic Committee would consist largely of experts in aspects of health risk assessment, health risk assessment practitioners, and professionals with expertise in training and development. It would also include representatives of the ‘Quality control and assurance committee’. The Committee would be assisted by sub-committees/working groups, who would be formed on an as-needed basis, to focus on the development of particular aspects of the training programme or the development of particular modules. Non-committee members could be co-opted on to a sub-committee/working group, to provide specific expertise on an as-needed basis. The Committee would have at least one face-to-face meeting per year, at which the annual work programme for the Committee would be agreed and assigned to different members of the Committee. This would be followed-up with regular teleconferences throughout the remainder of the year. The Committee would be supported by a secretariat provided by the Risk ASSETs™ Office.

4.4 Quality control and assurance committee

The ‘Quality control and assurance committee’ would have overall responsibility for the development, maintenance and implementation of a quality control and assurance programme for Risk ASSETs™. The main responsibilities of the committee would include to:

- oversee the development of and implementation of the Quality Policy and supporting Standard Operation Procedures
ROLES AND RESPONSIBILITIES

- ensure the application of common educational standards in the delivery and assessment of modules
- develop and periodically review the module evaluation form
- operate a rolling programme of moderation of pre- and post-course assessments and work with training providers to address any issues identified as required, operate a rolling programme of observation of module delivery
- provide feedback and recommendations to the ‘Academic Committee’ and ‘Programme Board’ as to areas that need to be developed further in the Risk ASSETs™ programme to ensure high educational standards
- receive and review reports based on data collated from the module evaluation form
- develop and implement an internal audit programme
- liaise with external quality assurance agencies as required
- produce an annual report on the quality of the Risk ASSETs™ programme

The ‘Quality control and assurance committee’ would consist of:

- a representative of the ‘Programme Board’
- representatives of the ‘Academic Committee’
- ‘Core University’ representatives
- Training Provider representatives
- educational specialists
- Risk ASSETs™ Office representative

Further details of the quality control and assurance procedures are presented in Section 5.

4.5 Risk ASSETs™ Office

The Risk ASSETs™ office would be an essential component to the running of the Risk ASSETs™ programme, as it would be the central coordinating body for the day-to-day operation of the programme and the first point of contact for any queries regarding Risk ASSETs™. The primary responsibilities of the Risk ASSETs™ Office would include:

- ensure the day-to-day operation of the programme
- handle day-to-day queries regarding the Risk ASSETs™ programme
- provide a secretariat function to the Programme Board
- provide a secretariat function to the Academic Committee
- provide a secretariat function to the Quality Control and Assurance Committee
- promote and develop awareness of the Risk ASSETs™ training programme
- provide support to training providers in publicising modules (e.g. producing leaflets and posters for national distribution and assisting in notifying national contacts of modules)
- coordinate the payment of expenses to members of the Committees (where applicable)
- maintain and develop a Risk ASSETs™ website
develop and maintain a list of available health risk assessment dissertation projects
develop and maintain a list of potential dissertation supervisors
develop and maintain a list of suitable placement opportunities for health risk assessors
develop and maintain a list of potential sources of bursaries/scholarships for trainees
collating and developing a central database of health risk assessment case-studies
developing a library (virtual) of health risk assessment resources, with a particular focus on those of relevance to the Risk ASSETs™ programme
administer central funds for trainee bursaries and the applications for the bursaries
administer applications by training providers for accreditation of modules to the Risk ASSETs™ programme
receive and collate evaluation forms from the attendance of trainees on modules
issue module certificates to trainees (upon notification from training providers of satisfactory completion of the module)
maintain trainee training records (e.g. Diploma supplements)
compile periodic reports on various aspects of the Risk ASSETs™ programme (e.g. based on evaluation forms, attendance of trainees on modules, etc.)
conduct an annual survey of a sample of trainees and stakeholders to monitor uptake, satisfaction and awareness of the training programme
compile an annual report on the Risk ASSETs™ programme
develop and maintain a database of health risk assessors in Europe
organise an annual health risk assessment conference (if applicable)

Staff would require expertise in administration, finance, health risk assessment, IT and the general day-to-day operation of training programmes. The Risk ASSETs™ Office would be accountable to the Programme Board.

4.6 Training providers

4.6.1 Training provider responsibilities
Training providers would be responsible for the development of module specific training materials and delivery of individual modules. The specific responsibilities of training providers would include:

- to develop module specific training materials in health risk assessment
- cooperate with the Academic Committee in the accreditation of training materials
- deliver training on a periodic basis in selected areas of health risk assessment
- assess pre- and post-course assessments in-line with common Risk ASSETs™ assessment guidelines
• cooperate and comply with the Risk ASSETs (™) quality control and assurance procedures in all areas of training development and delivery
• administer evaluation forms to trainees, collate them post-training and return them in a timely fashion to the Risk ASSETs (™) Office
• participate in broader Risk ASSETs (™) initiatives to develop health risk assessment training materials and capacity

4.6.2 Types of training providers
Identifying who will provide health risk assessment training across Europe is important to ensure that there is equity between training providers and that the Risk ASSETs (™) programme does not exclude competent training providers from delivering training within the programme. As such, there would be three types of training providers:

• Core universities
• Specialist training providers
• Other training providers

Further details of these training providers and the distinctions between them are provided below.

4.6.2.1 Core Universities
Core universities would be responsible for running the ‘Health Risk Assessment, Management and Communication – Principles and Practice (1) and (2)’ modules, other specialist modules, as their expertise allows, and for awarding ECTS credits and Master degrees. It is anticipated that there would be a network of Core Universities across Europe and that their number would be relatively small (e.g. five universities). Because of their role in awarding ECTS credits and awards up to a Masters degree, Core Universities would need to be closely involved in the running of the Risk ASSETs (™) programme to ensure they are satisfied with the quality of training trainees undertake and that it meets the requirements for study at the specified level. This is addressed further in Section 5.

4.6.2.2 Specialist Training Providers
Specialist training providers would be those training providers who would deliver individual modules of the Risk ASSETs (™) programme according to their individual expertise, but would not be involved in the actual awarding of qualifications. These training providers would, upon application, be provided with copies of the detailed module outlines and develop course material based on the detailed module outlines (Risk ASSETs, 2012c). Advice and guidance in developing course materials would be provided by the Risk ASSETs (™) Office.

In order for the training to be recognised under the Risk ASSETs (™) programme, the training material would need to be reviewed by the Academic Committee, including a representative of one of the Core Universities, prior to the training going ahead, and the training provider would need to agree to participate in the quality control and assurance procedures of the Risk ASSETs (™) programme. These would be mandatory
requirements to ensure the required standards of learning are achieved for awarding of ECTS credits.

4.6.2.3 **Other training providers**

There are a number of health risk assessment related courses across Europe that address many aspects of the Risk ASSETs™ knowledge and skills framework (for example, those identified in Work-package 4; Risk ASSETs, 2012a). It would be possible to include these modules into the Risk ASSETs programme provided that it could be demonstrated that the training course addressed relevant aspects of the KSF, was appropriately assessed and was of sufficient length and rigour. The number of ECTS credits assigned to the training course would depend on its' length, content and assessment requirements.

An assessment of whether a training course could be included in the Risk ASSETs™ programme would be undertaken on a case-by-case basis, upon application by the training provider to the Academic Committee, and would include a representative of the Core Universities recognising the training. The Academic Committee could approve the course, request amendments to the course, or deem the course not eligible for inclusion in the Risk ASSETs™ programme. As with ‘Specialist Training Providers’, ‘Other Training Providers’ would be required to participate in the quality control and quality assurance procedures of the Risk ASSETs™ programme to ensure the course is of sufficient quality to merit the awarding of ECTS credits.
5 QUALITY CONTROL AND QUALITY ASSURANCE

5.1 Introduction

A robust quality control and quality assurance mechanism would be a critical element for the Risk Assessment and Management – European Training (Risk ASSETs™) Programme as it would be the primary means to ensure quality of the training programme. This would have implications for a number of areas of the training programme as it would be essential to:

- ensure the quality of training and learning objectives are being met
- develop the reputation and confidence in the training programme amongst stakeholders
- ensure that training meets the educational standards of Core Universities awarding Risk ASSETs™ qualifications

A number of mechanisms would need to be put in place to ensure adequate quality control and quality assurance of the training programme. These would include:

- development of a Quality Policy, supported by various Standard Operating Procedures (SOPs)
- evaluation of training materials prior to delivery of the training programme
- trainee evaluation of modules
- other quality control activities, and
- a system of internal and external audit.

5.2 Quality policy

At the outset of the implementation of the Risk ASSETs™ programme, it would be necessary to develop a Risk ASSETs™ Quality Policy, which set out the expected values and standards to which Training Providers would be expected to hold and implement. The Quality Policy would need to be developed in close cooperation with the Core Universities and would be the primary means to ensure training is delivered to a standard sufficient for the Core Universities to recognise and award European Credit Transfer and Accumulation Scheme (ECTS) credits for the training delivered. Training Providers would be required to agree to and implement the Quality Policy as a condition of their participation in the Risk ASSETs™ programme.

The Quality Policy would be supported by a number of SOPs detailing how training providers would be expected to implement the Quality Policy. These would be developed by the Quality Control and Assurance Committee. Periodic audits would be made to ensure that the SOPs are being adhered to and implemented by Training Providers (Section 5.6).
5.3 Evaluation of training materials

Prior to delivery of a Risk ASSETs™ module, Training Providers would be required to provide a copy of the training materials to be used in the module to the Academic Committee. The training materials would include copies of lecture slides, proposed case-studies to be used, and any additional educational material to be used. The training materials would be evaluated by the Academic Committee (or a sub-committee thereof) to ensure they were technically accurate and were of sufficient quality to meet the quality requirements of the Risk ASSETs™ programme and the requirements of the Core Universities. Where training materials did not meet the required standard, advice and assistance would be provided to the Training Provider as to how the training materials need to be developed further.

5.4 Trainee evaluation of modules

Trainees attending each module will be required to complete a standard module evaluation, as supplied by the Risk ASSETs™ Office. This will be available for completion as a paper document, in order that trainees can evaluate the course as it progresses. The module evaluation forms will be collected by the Training Provider and returned to the Risk ASSETs™ Office for collation. The results from the evaluation forms would be used in a number of ways including:

- to monitor the quality of each individual module to ensure it is of sufficient quality and meeting trainees needs
- to support training providers in the delivery of modules
- to identify lessons to be implemented in the delivery of future modules
- evaluate the overall quality of the Risk ASSETs™ programme

Completion of the module evaluation form would be a pre-requisite to issuing a certificate to trainees for the course.

5.5 Other quality control activities

A system of quality control checks of the Risk ASSETs™ programme would be necessary to help maintain comparable standards of quality across the whole programme. The quality control checks would include:

- double marking of a sample of pre- and post-course assignments to ensure trainee assignments meet the required standard
- occasional visits to modules to observe teaching, group work on case-studies and the final presentation of case studies
- consideration of dissertations by the Academic Committee (or a sub-committee thereof)
5.6 Internal and external audit

5.6.1 Internal audit
A system of internal audit would be developed and implemented, overseen the ‘Quality Control and Assurance Committee’. Training Providers and the Risk ASSETS™ Office would be audited against the SOPs supporting the Quality Policy, and other SOPs, to ensure that the Quality Policy is being properly implemented, to provide a measurable indicator of the implementation of the Quality Policy, and to identify areas where further improvements may need to be made to the operation of the Risk ASSETS™ programme. An audit schedule would be established at the beginning of each year by the ‘Quality control and assurance committee’, identifying the areas to be audited and the number of audits. The results of internal audits would be collated by the ‘Quality control and assurance committee’ and reported to the Programme Board on a regular basis.

5.6.2 External audit
An external evaluation of the Risk ASSETS™ programme would be undertaken every five years to independently assess whether it was meeting its aims and objectives, assess the quality of the programme, and to identify areas where further improvements to the programme could be made. The evaluation would be conducted by an evaluator independent of the Risk ASSETS™ programme and to whom access would be granted to the necessary information for them to conduct their evaluation. The evaluation report would be presented to the Programme Board and made publicly available.
6 FINANCE AND FUNDING

6.1 Introduction

Ensuring a sustainable system of funding the Risk ASSETs (™) programme will be an essential requirement to ensure its long-term viability and success. This section considers the costs that would need to be covered and possible funding mechanisms to meet these costs.

6.2 Cost estimates

A number of costs would need to be considered when addressing funding of the Risk ASSETs programme. These include:

- operating costs for the Academic Committee and Quality Assurance and Control Committee (attendance expenses, hosting meeting costs, etc.)
- Risk ASSETs (™) Office staff
- development and maintenance of website
- scholarships and bursaries
- quality control and assurance activities
- annual conference
- office rental, equipment and consumables
- funding of fast-track trainees

The precise cost of establishing the Risk ASSETs (™) programme is difficult to determine precisely as there are currently many variables which need to be addressed before a precise cost estimate is developed.

6.3 Potential sources of funding and funding mechanisms

The funding of the Risk ASSETs (™) programme requires careful consideration in order that a sustainable means of funding the programme is identified and developed. All the modules and dissertation would be funded by course fees paid by trainees to attend the module. However, there are wider costs (Section 6.2) which would also require funding. Initially, the programme would require pump-priming funding for several years in order to start and develop the programme to a point where it is able to fund itself. Thereafter, potential means of funding the scheme could include:

- requiring Training Providers to pay a small percentage of course fees (e.g. 10%) to the Risk ASSETs (™) Office to cover central administrative costs related to their course
- requiring Training Providers to pay a fee for accreditation of their course material to the Risk ASSETs (™) programme
seeking funding from stakeholders to subsidise the training programme, given the national and European benefits it would produce for stakeholders

seeking funding of individual scholarships, bursaries and fast-track trainees from stakeholders

If a system of accreditation of health risk assessors in Europe was also developed, an additional avenue to consider would be whether income derived from accrediting health risk assessors could also be used to support the operation of the Risk ASSETs™ programme. Support in-kind (e.g. office space, equipment, consumables) could also be sought from stakeholders.

6.4 Financial reporting

The Risk ASSETs™ Office would be responsible for producing an annual finance report, detailing all funding and income and how it had been allocated. The Finance Report would be presented to the Programme Board for approval and would be subject to external audit.
7 STAKEHOLDER ENGAGEMENT, REPUTATION AND PUBLICITY

7.1 Introduction

Awareness, recognition and reputation of the Risk ASSETs\textsuperscript{TM} training programme will be key element in its success and uptake. In particular, Work-package 4 highlighted that one of the main barriers to attending training is lack of awareness of courses and a key considerations in attending training is the reputation of the training provider. As such, a high-level of awareness, recognition and a reputation of high-quality training delivered under the Risk ASSETs\textsuperscript{TM} programme will need to be established amongst the key stakeholder groups in order for it to succeed.

7.2 Stakeholder groups

The key stakeholders for Risk ASSETs\textsuperscript{TM} (and any health risk assessment training programme), with whom awareness and reputation of the training programme will need to be established are:

- health risk assessment trainees – these people will attend the courses, provide feedback on courses (both formally to Risk ASSETs\textsuperscript{TM}, and informally to line-managers and peers) and may often be a first point of contact for peers seeking advice on attending future courses
- employers of health risk assessors – these may often be those who support the attendance of trainees on courses and hence who need to recognise the value of the training in order to be able to support it properly
- training providers – these people will be those who actually run the modules. There may need to be both a financial and professional benefit for them to develop training material and running a course, and
- other stakeholders (such as non-governmental organizations, industry associations, etc.) – these may have a broader interest in the training programme and may be in a position to provide support, but may not actually attend, directly support an individual’s attendance or run a module.

Means of achieving support from these stakeholders are varied and will include:

- establishing a reputation for high-quality, practical and applied training in health risk assessment
- including representatives from the key stakeholder groups on the Risk ASSETs\textsuperscript{TM} Programme Board and Academic Review Board, as appropriate
- conducting periodic surveys (or other similar events) of key stakeholders to ensure that the Risk ASSETs\textsuperscript{TM} programme meets and continues to meet stakeholder needs
7.3 Reputation

The reputation of the Risk ASSETs\textsuperscript{(TM)} training programme will be a key factor in establishing its success. In particular, the reputation will largely be established by the quality and applicability of the training provided. As such, this will depend heavily on the development of the curricula, development of training materials by training providers, the existing reputation of training providers, suitable training facilities, good delivery of the training modules, and a robust system of quality control and quality assurance. These elements are addressed, but their wider implications, in terms of establishing the reputation of the training programme, should not be under-estimated.

7.4 Awareness and publicity

7.4.1 Introduction

Awareness and publicity of the Risk ASSETs\textsuperscript{(TM)} training programme will be another key factor in the success of the uptake of the training programme. A strong reputation will aid raising awareness of the training programme. However, a number of other activities would also be valuable in raising awareness of the training programme. These include:

- a website
- general promotion activities
- annual conference

These are considered in more detail below.

7.4.2 Website

A good, well-designed and informative website would be an essential element for raising awareness of the Risk ASSETs\textsuperscript{(TM)} programme, and health risk assessment training opportunities more generally. In particular, a European health risk assessment training website would provide a central hub for health risk assessment training information across Europe, and could include:

- details of the overall training programme, how it operates, how to enter into the training programme, and its value for trainees, employers and other stakeholders
- details of forth-coming Risk ASSETs\textsuperscript{(TM)} accredited health risk assessment training courses
- details of other health risk assessment training and continuing professional development opportunities
- details of forth-coming health risk assessment related events (e.g. conferences, workshops, etc.)
- a members area allowing access to an on-line message board
- a trainees area where details of:
  - completed training can be accessed
  - details of available grants/bursaries that could be used to support training activities
Such a website would be equally accessible across Europe and so facilitate health risk assessment training throughout Europe. It would also act as a central platform to advertise health risk assessment training courses, thereby addressing the need for better publicity of training opportunities (as identified in Work-package 4). The website could also be developed further to include details of job vacancies and other similar opportunities (e.g. to apply to participate in committees), and continuing professional development opportunities, thereby supporting professionals in pursuing a career in health risk assessment. A regular newsletter/e-mail update could also be used to notify registered website users of noteworthy developments in training and health risk assessment, highlight particular successes/achievements and report on important developments in health risk assessment.

Regular maintenance of the website would be essential to ensure the information contained in it is up-to-date and suited to the health risk assessment audience.

7.4.3 General promotion activities
Activities to promote the Risk ASSETs(™) programme more widely could include:

- developing a Risk ASSETs(™) leaflet for distribution at conferences and other similar events
- using existing databases of health risk assessors to raise awareness of the training programme
- including adverts/links on health risk assessment related websites
- having a trainee of the year award to help to engage trainees in the programme; this could be supported by selected sponsors and awarded at the annual conference

7.4.4 Annual conference
An European conference in health risk assessment would provide a valuable opportunity to raise the profile of Risk ASSETs(™), provide a focus for health risk assessment activities in Europe, facilitate the discussion of scientific and technical advances in health risk assessment, provide an opportunity for networking, and provide an opportunity for trainees completing their dissertation to present the results of their work. The conference could also provide an opportunity for Risk ASSETs(™) committees to meet prior to the conference. A similar approach is used in the European Programme for Intervention Epidemiology Training (Appendix D2) scheme and provides trainees an opportunity to meet, present research results and evaluate progress towards achieving the programme’s objectives. Such a conference could be linked with an existing initiative, such as the bi-annual DG SANCO-led conference on risk assessment, European Chemical Agency events, or other European health risk assessment
initiatives. Trainees should be eligible for a reduction in attendance costs and/or have bursaries available, to facilitate their attendance at the conference.
8 OTHER CONSIDERATIONS

8.1 Introduction

There are a number of over-arching considerations that would need to be addressed in implementing the Risk ASSETS\textsuperscript{\textregistered} programme. These are:

- equity of accessibility of training
- language policy
- legal implications

These are considered in more detail below.

8.2 Equity of accessibility of training

In developing Risk ASSETS\textsuperscript{\textregistered}, careful consideration needs to be given to accessibility of training, both from a geographical and financial perspective. Two commonly cited barriers to attending training were the cost of training (too expensive) and location (too far away; Risk ASSETs, 2012a). With the majority of training currently occurring in Western Europe (Risk ASSETs, 2012a), there is a risk that those in other parts of Europe may not have equal access to training opportunities due to geographical and financial constraints. This could lead to inequalities in capacity in health risk assessment knowledge and skills across Europe (i.e. only those within geographical reach and with sufficient financial resources attend training) and this could subsequently lead to inequalities in levels of public health protection.

In order to mitigate this risk a number of measures would need to be taken in developing the Risk ASSETS\textsuperscript{\textregistered} training programme. These include:

- a system of targeted support for financially disadvantaged trainees to ensure that training is affordable for all
- encourage and promote the delivery of training throughout Europe to ensure geographical accessibility
- monitor the delivery of training and attendance of trainees to determine whether there are geographical disparities in delivery and attendance and explore reasons for any disparities

As a long-term aim, work towards developing e-learning and remote access training materials would also further facilitate equitable access to health risk assessment training. This was one of the suggestions for improving training cited in Work-package 4 (Risk ASSETs, 2012a). Whilst the fees for modules will be ultimately determined by the training provider, work towards a common fee structure for modules would also help ensure equity in accessibility of modules.

An additional barrier to training can also be language and, in particular, that health risk assessment training is often delivered in English.
8.3 Language policy

A language policy would need to be developed for the Risk ASSETs\textsuperscript{TM} programme in order to facilitate learning in languages other than English. In particular, consideration would need to be given as to how the Academic Committee would assess training materials and how the training provider would participate in the quality control and assurance procedures of the Risk ASSETs\textsuperscript{TM} programme, given that they will initially have been developed in English. The availability of training in languages other than English, however, would facilitate greater access to health risk assessment training throughout Europe.

8.4 Legal implications

Consideration would need to be given to intellectual and copyright implications of material used within the programme. In particular, a culture of sharing training materials to facilitate the overall development of training capacity across Europe should be fostered, within an appropriate intellectual and copyright environment.
9 ACCREDITATION OF HEALTH RISK ASSESSORS IN EUROPE

9.1 Introduction

The Risk Assessment and Management – European Training Programme (Risk ASSETs™) project committed to engage in discussions regarding accreditation of health risk assessors in Europe to help inform the development of the administrative framework. The activities undertaken are listed in Section 2.2.3. This section briefly outlines how the Risk ASSETs™ programme could operate within an accreditation system to facilitate the professional recognition of health risk assessors in Europe.

9.2 Current accreditation proposals

Current proposals put forward by the European Committee for Standardization (CEN) for the accreditation of health risk assessors of chemicals involve two aspects. The first is the accreditation of health risk assessors themselves, establishing the professional requirements a health risk assessor would need to meet in order to be recognised as an accredited health risk assessor; the second is the requirements of a training scheme to train health risk assessors to be competent to assess health risks to chemicals. At the time of writing it has yet to be decided by CEN whether the development of the standard will be taken forward. As such, the proposals of how Risk ASSETs™ may integrate with an accreditation scheme are based on the information currently available. However, these may need to change if and as the CEN standard are developed.

9.3 Relationship between Risk ASSETs™ and accreditation of health risk assessors in Europe

Whilst Risk ASSETs™ has not been developed with a view to meeting accreditation requirements which are, as yet to be set, there are a number of ways Risk ASSETs™ could be integrated into a future accreditation system of health risk assessors in Europe. In particular, Risk ASSETs™ could be integrated into an accreditation scheme through:

- a shared knowledge and skills framework against which health risk assessors are assessed for accreditation purposes, but a substantial proportion of which forms part of the knowledge and skills framework for the Risk ASSETs™ programme and is the basis for development of modules
- providing a training framework to enable health risk assessors to meet accreditation requirements
- providing a training and professional development framework to enable health risk assessors to meet continuing professional development requirements of an accreditation scheme
- the Risk ASSETs™ Office providing administrative support to an accreditation scheme
These potential links could only (™) be fully realised once an accreditation scheme was fully developed, but the Risk ASSETs programme could provide an already established solid foundation from which to develop an accreditation scheme if implemented.
10 DISCUSSION AND WAY FORWARD

10.1 Introduction

The proposed administrative framework for the Risk Assessment and Management – European Training (Risk ASSETs™) programme provides a template for implementation. Much of the precise detail of the administrative framework would be developed as Risk ASSETs™ was implemented but this framework identifies the main areas in which more detailed operating protocols would need to be developed. This section discusses some of the benefits and challenges of the Risk ASSETs™ programme and administrative framework, and proposes a number of possible ways forward.

10.2 Benefits and challenges

There are a number of principal benefits associated with the proposed Risk ASSETs™ programme and administrative framework. These included:

- improving the availability and calibre of assessors of chemical and electromagnetic field health risks in Europe
- promotes consistency in health risk assessments undertaken across Europe
- establishing a European-based health risk assessment training scheme, which can readily respond to European training needs, whilst having the capacity to incorporate national or regional considerations
- trainees have access to a wide breadth of high-quality teaching in health risk assessment from across Europe that is set against an established benchmark
- trainees have an opportunity to gain a wider cultural experience
- supports the development of health risk assessment professional networks across Europe (both amongst training providers and trainees) that, in turn, can facilitate research and assist in identifying future employment opportunities
- promotes inter-institutional cooperation and learning, thereby enhancing the quality of health risk assessment training available across Europe
- supports Member States to comply with relevant risk assessment requirements in European Union (EU) legislation and thereby improves the safety and security of EU citizens
- assists in the improvement of public health protection through application of health risk assessment by well trained health risk assessors

In particular, the principal benefit is likely to be greater cooperation and networking between health risk assessor across Europe and better recognition of health risk assessment as a professional domain.

The principal challenge to taking forward Risk ASSETs™ is the recognition of training undertaken through the Risk ASSETs™ programme by Core Universities, with a view to obtaining a Masters in Health Risk Assessment and Management. The current proposal suggests a system whereby Core Universities would award European Credit Transfer Scheme credits for training delivered by non-university Training Providers. If
developed, Risk ASSETs\textsuperscript{(™)} would be the first such scheme in Europe and would require particularly close cooperation between the Core Universities involved. Achieving such cooperation would require a substantial level of commitment from the Core Universities and the Risk ASSETs\textsuperscript{(™)} Office.

Other substantial challenges include:

- identifying and developing sustainable funding mechanisms
- establishing and maintaining support and recognition amongst stakeholders, training providers and trainees
- assuring common standards of quality across the network

Whilst these challenges can be addressed through careful planning, good cooperation, and implementation, they require further careful consideration before implementation of Risk ASSETs\textsuperscript{(™)} in order to ensure they don’t become barriers to implementation.

10.3 Way forward

The Risk ASSETs\textsuperscript{(™)} programme has substantial potential to improve the availability, knowledge and skills of scientists to assess the risks to health posed by chemical and electromagnetic field health risks. With time, this could be expanded to cover other hazards (e.g. ionising radiation, noise). If implemented, it also would have substantial wider benefits for the health risk assessment community in Europe, training providers and stakeholders. In taking the Risk ASSETs\textsuperscript{(™)} programme forward a number of activities need to take place. These include:

- establishing a high-level commitment from key stakeholders, academia and others (e.g. the European Commission) to developing such a training programme
- identifying key stakeholders who would provide oversight and advice on the further development and implementation of the programme
- identifying key potential partners who would participate in the initial development
- identifying funding sources and mechanisms for the initial development of Risk ASSETs\textsuperscript{(™)}
- hosting a number of workshops to discuss further the feasibility of implementing the programme, particular amongst potential Core Universities, training providers and stakeholders
- developing a detailed proposal for implementation and the initial development phase
REFERENCES


### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEN</td>
<td>European Committee for Standardization</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>ECTS</td>
<td>European Credit and Accumulation Transfer Scheme</td>
</tr>
<tr>
<td>KSF</td>
<td>Knowledge and skills framework</td>
</tr>
<tr>
<td>Risk ASSETs™</td>
<td>Risk Assessment and Management – European Training Programme</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
</tbody>
</table>
APPENDIX A Work-package 10 Specification

A1 WORK PACKAGE N°10: DEVELOPMENT OF A COURSE ADMINISTRATION FRAMEWORK TO FACILITATE THE DELIVERY OF RISK TRAINING ACROSS EUROPE

A1.1 List of partners involved
Work-package leader: Health Protection Agency (HPA)
Work-package partners: Fundacio Centre de Recerca en Epidemiologia Ambiental (CREAL)
Nofer Institute of Occupational Medicine (NIOM)
Università degli Studi di Genova (UNIGE)
Utrecht University (UU)
Collaborating partners: World Health Organization, Rome
World Health Organization, Geneva

A1.2 Objectives
6 Provide a mechanism that will enable the delivery and administration of a European training programme

A1.3 Description of the work
An administrative framework will be designed to enable administration of the risk assessment and management training programme and to enable coordination of the professional development of trainee risk assessors. In designing the structure of existing schemes (e.g. the European Programme for Intervention Epidemiology Training scheme; EPIET) will be reviewed. The aim of the review will be to determine whether such schemes can be used as a model for the proposed Risk ASSETs programme. The review will include consultation with EPIET and other schemes as how best to structure a similar system aimed at setting up a risk training programme. Where applicable and appropriate, site visits will be made to fully review selected administrative frameworks that are of particular relevance to the Risk ASSETs training scheme.

The proposed structure will establish a framework capable of:

- Facilitating training people in a country different from their own and establishing a process that facilitates hosting the training sessions in different countries as applicable
- Identifying a process for financing such a system
- Setting up a process to ensure common training standards are maintained, and that course content is reviewed in light of new developments
- Enabling trained risk assessors to have an EU-recognised qualification and that the training will substantially enhance career prospects
- Ensuring quality assurance and control throughout the system

This work package will also explore and identify ways of gaining a recognised qualification as a means of encouraging course participation. This will involve determining whether a common qualification system can be put in place and taken forward by universities and other institutions in order to obtain a recognised qualification. This will have three stages: foundation course, diploma level and Master level. Where possible, the project team will look to engage in discussions regarding accreditation of health risk assessors in Europe, for example, by engaging with TRISK or European efforts to develop standards in health risk assessment. Budget has been allocated to attend one international meeting to engage in such discussions. This will help ensure such initiatives are taken into consideration in the development of the administrative framework.

Consideration will be given to the most appropriate means of promoting and disseminating risk assessment training programmes so that these can be put in place when the training programme is implemented.

### A1.4 Deliverables and links with other work packages

D11 Proposed administrative framework to promote and facilitate risk assessment training
APPENDIX B Aspects of training schemes reviewed

- General overview of the scheme
- Aim and objectives of training scheme
- Curricula development and review
  - How was the curricula initially developed and by whom?
  - Is the curricula reviewed and updated? How often? By whom?
- Application and selection
  - What are the entry requirements for trainees to join the training?
  - Is there a selection process, and if so, how is this carried out?
- Training delivery
  - How is training delivered?
  - How is training assessed?
- Training outcomes
  - What is the outcome for successful trainees?
- Other training providers
  - Does the training scheme allow for other training providers to administer the training?
  - If 'yes' how are they assessed/accredited before being allowed to give the training?
  - Is the quality of their training provision monitored/assessed on a regular basis?
- Professional status/recognition
  - Does the training contribute to attaining a professional status?
  - If 'yes', what are the requirements for the professional status?
  - Are there agreed professional competencies?
- Placements and secondments
  - Does the training involve placements/secondments/consolidation?
  - Are these assessed in any way?
  - How are these identified and selected?
  - How are they supervised?
- Continuing Professional Development
  - Are there any continuing professional development requirements for trainees after they have successfully completed the training?
  - If 'yes', what are these? How are they assessed? How often are they assessed? How is this administered?
- Promotion and awareness
  - What is done to promote the training scheme to trainees?
  - What is done, if anything, to promote the training scheme to stakeholders and to gain recognition/acceptance?

- Quality control/assurance
  - How do you ensure the quality of training provision?
  - Is feedback from trainees obtained/monitored?

- Staff requirements
  - How many staff are required to administer and run the scheme?
  - What additional input is required (e.g. people sitting voluntarily on committees)? By whom, how often?

- Finance and funding
  - How was the initial set up of the scheme financed?
  - How is the training scheme financed now?
  - Are there scholarships/bursaries available?
APPENDIX C Conclusions regarding non-technical training needs of health risk assessors from Work-package 4

C1 NON-TECHNICAL TRAINING REQUIREMENTS FOR HEALTH RISK ASSESSORS IN EUROPE

Overall, the non-technical aspects of training delivery should take into consideration the following points:

- the training should operate under a structured European training programme
- there should be formal recognition of training undertaken
- training should largely be delivered via short-courses
- courses should be available throughout Europe
- training should be focused at a practitioner level (i.e. around the work to be carried out) rather than an academic level
- a system of funding or scholarships should be considered to facilitate participation in health risk assessment training
- courses should be delivered by training providers who have a good reputation
- the courses should be well publicised
- an opportunity for mentorship and networking should be provided to facilitate learning
- e-learning should be considered where practicable
- there should be opportunities to gain wider experience in different organisations via secondments/placements
APPENDIX D Review of Training Schemes of Relevance to Health Risk Assessment

D1 THE CHARTERED INSTITUTE OF ENVIRONMENTAL HEALTH

D1.1 Introduction
The Chartered Institute of Environmental Health (CIEH) manages the training, qualification and registering of qualified Environmental Health Practitioners (EHPs). Environmental Health Practitioners work to ensure that the risks to health are minimised by protection from environmental hazards. There are five key areas of environmental health:

- food safety
- housing
- environmental protection
- occupational health and
- public health.

Environmental Health Practitioner’s can choose to be a generalist or to specialise in a particular area. Employment opportunities are varied and include jobs with corporate industrial or retail chains, housing associations and local authorities.

To become a fully qualified EHP, members must have completed an environmental health degree, complete a practical Portfolio of Professional Practice (PPP), pass professional examinations and be registered with the Environmental Health Registration Board (EHRB)\(^1\).

D1.2 Curriculum development and review
The Chartered Institute for Environmental Health review and amend the educational core curriculum regularly along with frequent changes to the professional work-based learning requirements (PPP and professional exams). The curriculum was updated and changed in 2011 and now comprises of a package of elements, with a central ‘Framework’ and ‘Synopsis’ which provide the professional aims and learning objectives of the curriculum. An overview of the ‘Synopsis’ is presented in Box D1.1.

\(^1\) [http://cieh.org/professional_development.html](http://cieh.org/professional_development.html)
Box D1.1 Environmental Health Curriculum 2011 – ‘Synopsis’

<table>
<thead>
<tr>
<th>Main areas</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamental principles and underpinning knowledge</td>
<td>Provides students with a sound general knowledge of the natural and human-made worlds and their systems</td>
</tr>
<tr>
<td>Intervention strategies and operational skills</td>
<td>Utilisation of knowledge of the objectives of environmental health practice and relate theory to practice</td>
</tr>
<tr>
<td>Practice skills in each intervention field</td>
<td>Definitions of the practice skills in the four technical ‘Intervention fields’ and ‘Public health’</td>
</tr>
<tr>
<td>• Public health</td>
<td></td>
</tr>
<tr>
<td>• Food safety</td>
<td></td>
</tr>
<tr>
<td>• Health and safety</td>
<td></td>
</tr>
<tr>
<td>• Housing and health</td>
<td></td>
</tr>
<tr>
<td>• Environmental protection</td>
<td></td>
</tr>
<tr>
<td>Core competencies</td>
<td>The range of skills that would be expected to have been acquired and practised by the EHP in training, but as yet may not have become embedded through sustained practice.</td>
</tr>
</tbody>
</table>

The curriculum of BSc and MSc courses offers in-depth studies of all five key areas of environmental health — food safety, housing, environmental protection, occupational health and public health. Other studies put science in a social, economic and legal context. There is also emphasis on developing skills in general management, education (training skills), communication, negotiating, analysis and evaluation. The courses also involve a mix of laboratory work, case studies, visits and group projects.

D1.3 Training delivery and assessment

Introduction

For new entrants to environmental health, there are three stages to qualifying as an EHP:

- a degree in environmental health from a university accredited by the CIEH (this includes a practical food inspection examination)
- a practical PPP has to be completed, which provides evidence of work-based learning
- professional examinations have to be passed to gain a Certificate of Registration from the EHRB.

Degree in environmental health

Environmental health is a graduate profession, so all student EHPs must first obtain a degree in Environmental Health accredited by the CIEH. School or College leavers can enrol on an accredited BSc degree course in Environmental Health. This is a 4 year course with integrated experiential learning or a 3 year full-time course followed by ‘end on’ experiential learning.

Accredited BSc in Environmental Health are offered in the UK at Cardiff Metropolitan University, Coventry, Leeds Metropolitan, Liverpool John Moores, Middlesex University, Manchester Metropolitan, Nottingham Trent, Salford, Northumbria, Wolverhampton University and the University of Ulster. There are also CIEH Accredited BSc Courses in Malaysia.
Graduates who already have a BSc/science degree in another field can study a postgraduate MSc course in Environmental Health. This is available as either a 1-year full-time or 2-year part-time course, with work-based learning or through distance learning opportunities.

**Portfolio of Professional Practice**

The Portfolio of Professional Practice forms part of the pathway to qualification as an EHP. The portfolio is based upon the concepts of experiential learning and reflective practice and requires candidates to undertake a range of interventions, develop a range of skills and reflect upon their experiences. The interventions and skills are divided into five intervention fields – Food Safety, Health and Safety, Housing and Health, Environmental Protection and Public Health (Table D1.1).

**Table D1.1 Portfolio of Professional Practice: Summary matrix showing core skills to be demonstrated and intervention fields to be completed.**

<table>
<thead>
<tr>
<th>Intervention fields</th>
<th>CORE SKILLS</th>
<th>REFLECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Safety</td>
<td>Describe how first-hand information was acquired through observation/inspection/audit/investigation/sampling/survey, and how this enabled you to establish the nature of the hazard(s).</td>
<td>Reflect upon the experience of undertaking the intervention in terms of the difficulties encountered in acquiring information, uncertainties involved in risk assessment, the effectiveness of the course of action and any incidental problems encountered.</td>
</tr>
<tr>
<td>Health And Safety</td>
<td>Show how, by consulting guidance/standards/ Codes of Practice/ other secondary sources, you were able to determine the nature and level of risk presented, so indicating whether intervention was required (or not).</td>
<td></td>
</tr>
<tr>
<td>Environmental Protection</td>
<td>Identify the range of solutions that might be available to deal with the problem, before deciding upon, and giving justification for, the ‘most appropriate course of action’ chosen, having regard to the need to secure compliance/maximise effectiveness/protect health and well-being.</td>
<td></td>
</tr>
<tr>
<td>Housing and Health</td>
<td>Knowledge based and practice based</td>
<td></td>
</tr>
<tr>
<td>Public Health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 Accredited MSc in Environmental Health are offered at Birmingham University, University of the West of England, University of Derby, Leeds Metropolitan, Middlesex University and Kings College London.

4 Based on information from the CIEH's Portfolio of Professional Practice: Intervention Field Matrices (Version 1.0 November 2011) http://cieh.org/professional_development/ppp.html
The Portfolio of Professional Practice needs to be completed during work-based placements and requires candidates to apply core skills to task in the five areas of environmental health. The Portfolio of Professional Practice is a matrix based pro-forma requiring the completion of at least five tasks in each intervention area (e.g. Environmental Protection). Students are also required to reflect upon learning and consider difficulties in completing tasks, and effectiveness of risk assessments and actions. The competed matrix insertions are signed-off by a work placed mentor to show competence of the student and proof of the candidates own work.

**Professional examinations**

Candidates who complete all five intervention fields of the PPP will be required to sit a professional interview. This incorporates a prioritisation exercise, discusses a scenario in detail, and a 20-minute ‘viva’ on a PPP Intervention Area report submitted by the candidate. The assessment is one hour.

**Training outcomes**

On passing the examinations, candidates become a fully qualified environmental health practitioner, and are awarded the Certificate of Registration by the EHRB. Students are required to register with the EHRB at least 21 days prior to making an application for assessments.

**Training providers**

All degree programmes need to be accredited by CIEH in order to train EHPs. Some short-courses are taught by relevant consultancies and training providers, e.g. in Health and Safety, and these would count as CPD hours to maintain accreditation (see CPD below). Trainers need to register with the CIEH to deliver approved courses.

**D1.4 Professional status and recognition**

*Introduction*

The CIEH offers six membership grades suited to students and practitioners at various stages of their career. This includes students, lecturers, trainers and anyone with a commitment to the profession. There are currently over 10,000 members, mostly in England, Wales and Northern Ireland.

Membership of CIEH supports the work of the CIEH and the Environmental Health profession by:

- encouraging and demonstrating members’ contribution to improving environmental health

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5 http://www.cieh.org/training/registering_deliver_qualifications.html
• raising the status and understanding of environmental health – with national, regional and local government, employers, the media, the public and other stakeholders
• promoting improvements in environmental and public health policy
• ensuring that the high professional standards, knowledge and competencies of environmental health practitioners are achieved and maintained.

Membership also includes subscriptions to CIEH and industry publications, such as Environmental Health News and networking and training opportunities through regional and special interest groups.

Membership grades

a. Student: for people undertaking a CIEH-accredited degree
b. Associate: for people who work in or have an interest in environmental health
c. Accredited Associate: they need:
   • A Level 4 qualification issued by the CIEH or the EHRB or
   • another relevant qualification and have passed the CIEH's Membership Assessment at the required level.
d. Graduate: for people who:
   • have an EHRB Certificate of Registration, but who have not passed a 'gateway' assessment, or
   • have passed a CIEH accredited degree, or
   • have qualified as EHPs overseas.
e. Voting: for people who have:
   • an EHRB Certificate of Registration (and have passed a "gateway assessment" if appropriate), or
   • passed an EHRB qualification at the required level, or
   • hold an appropriate qualification and have passed the CIEH's Membership Assessment at the required level.
f. Fellow: Fellowship may be awarded to Voting members who have:
   • given distinctive service to environmental or public health; or
   • shown evidence of special knowledge or ability in relation to the work of environmental or public health.

Fellowship can only be awarded to people who are Voting members. Fellows are among the CIEH's most knowledgeable and experienced members. Award of a Fellowship is the gift of Council and recognises members who have made an outstanding contribution to the profession.

There are two routes to Fellowship: election, nominated by colleagues from a region or by the person themselves, or by thesis, as an author of a substantial piece of research that adds to the knowledge base in the field of environmental health. There is also a petition route, where you can be nominated by an individual member, supported by at least one Chartered EHP. The nomination is submitted in writing directly to the Chief Executive.

6 http://cieh.org/members.html
Special Interest Groups

As well as belonging to a region, members can elect to join a nationally-based Special Interest Group (SIG) in:

- Port Health
- Commercial and Independent sectors
- International Environmental Health
- Education and Research.

To start a SIG, 50 members need to petition the CIEH Council for the establishment of a SIG covering their particular area of interest. Petitioners are required to demonstrate that their needs cannot be met adequately at a regional level.

D1.5 Placements and secondments

Student EHPs are advised to seek sponsored work-based placements, usually in local authorities, where they can be exposed to the variety of tasks that EHPs can work on. Local authorities usually advertise student placements through the CIEH magazine, Environmental Health News7. These are 48 week placements that are salaried on a full- or part-time basis. Placements can be attended either throughout university based study, or after the formal study period. Central Government spending reviews have severely limited the availability of these placements in the past couple of years due to funding restrictions.

D1.6 Continuing professional development

The Chartered Institute of Environmental Health requires qualified EHPs to maintain Continuing Professional Development (CPD) by requiring a minimum number of CPD hours to maintain professional standards and knowledge. All CIEH members must undertake CPD, with the exception of student, associate and retired members. The standard requirement is 20 hours of CPD per year; Accredited Associate members need 10 hours and members holding Chartered status need 30 hours.

Continuing Professional Development consists of structured training in all environmental and public health subjects and management courses for managers. Continuing Professional Development can also be gained from:

- Open University Professional Skills Courses
- Environment Health News assignments, advertised monthly in the CIEH magazine
- ‘Enhanced CPD’, gaining additional core CPD hours by undertaking reflective practice on training undertaken and recording this on worksheets.
- A Personal Development Plan, specifying a longer learning and training needs programme that attracts 1 hour of core CPD

All members subject to the CPD scheme are required to maintain CPD records, including evidence of training and other development undertaken. This can be recorded

7 http://www.ehn-online.com/
via the online member’s area: ‘MyCIEH’ portal. The Chartered Institute of Environmental Health monitors CPD compliance via an annual random sample of members. Members selected in the sample are required to submit their CPD records for verification. Members with Chartered status must make an annual declaration in respect of their 30 hours CPD requirement.

D1.7 Promotion and awareness
The Chartered Institute of Environmental Health have a fully comprehensive website with details of the qualification routes, membership options, media press releases, events, policies and professional development options. They run a number of promotional events, seminars, conferences and have a constant presence at industry events.

CIEH publishes a number of publications of guidance note and reports. This includes a monthly members magazine Environmental Health News, and the Journal of Environmental Health Research. Email distribution lists of topic areas are vetted and managed by CIEH. The Environmental Health Careers website provides information for school leavers or those planning to undertake a qualification in environmental health.

D1.8 Quality control and assurance
The Chartered Institute of Environmental Health audits all training providers of EHP material. At registered centres of training (including the University providers), a yearly audit is undertaken as a means of ensuring that qualifications are being effectively developed, maintained, assessed and monitored in accordance with the overall requirements of the Office of the Qualifications and Examinations Regulator. Audit visits, report writing and reviews of self-assessments are carried out by a dedicated team of auditors who are field based. The auditors have extensive experience of all aspects of CIEH qualifications and training provision and have worked for the CIEH for a number of years. There is a rolling programme of paper-based, self-assessment audits (Centre Self-assessment Audits) that back up this programme. This process also investigates allegations of malpractice and complaints.

The Chartered Institute of Environmental Health also provide a wealth of material and support to trainers online and through a trainer’s forum based regionally, and the ‘Trainers Exchange’ quarterly magazine.

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8 http://cieh.org/mycieh/login.aspx
9 http://www.ehcareers.org/
D2 EUROPEAN PROGRAMME FOR INTERVENTION EPIDEMIOLOGY TRAINING

D2.1 Introduction
The European Programme for Intervention Epidemiology Training (EPIET) was created in 1995, following a European Commission call for proposals to establish a 2-year European programme for intervention epidemiology training. The purpose of EPIET is to create a network of highly trained field epidemiologists in the European Union (EU), strengthening public health epidemiology at Member State (MS) and EU-level. The programme provides training and practical experience in intervention epidemiology at national centres for surveillance and control of communicable diseases in the EU. EPIET is aimed at EU medical practitioners, public-health nurses, microbiologists, veterinarians and other health professionals with previous experience in public health and a keen interest in epidemiology. The programme was initially coordinated by the Swedish Institute of Infectious Disease Control and funded by the European Commission and MSs. In 2007, the programme was integrated into the European Centre for Disease Prevention and Control (ECDC) in Stockholm, Sweden.

D2.2 Aims and objectives
The primary objective of the EPIET programme is to provide state-of-the-art training in field epidemiology enabling its fellows to apply epidemiological methods to a wide range of public health problems in Europe. The main emphasis of the programme is on learning-by-doing activities.

The overall EPIET objectives are:

- to strengthen the surveillance of infectious diseases in EU Member States and at the Community level
- to develop response capacity at national and community level to address communicable disease threats or outbreaks of unknown origin through rapid and effective field investigation and control
- to develop a European network of public health epidemiologists using best practise and sharing common objectives, and
- to contribute to the development of the community network for the surveillance and control of communicable diseases.

D2.3 Overview of training programme
The EPIET programme consists of two complementary pathways, a public health microbiology pathway: the European Programme for Public Health Microbiology (EUPHEM), and an epidemiology pathway: EPIET (Figure D2.1). The EUPHEM path was introduced to EPIET in 2008 with the aim of building capacity in the field of public health microbiology inside and beyond the EU.
The epidemiology pathway of EPIET is divided into two tracks:

- an EU-track: participants undertake training in a different MS country than their country of origin, and
- a MS-track: participants undertake training in their own home country. This aims to build capacity and skills in particular MSs.

The programme lasts two years. The training scheme comprises of theoretical training and learning by doing. The theoretical training consists of:

- an introductory course (3 weeks) in infectious disease epidemiology (open to external participants) which aims to instill a strong sense of motivation for intervention epidemiology, and
- six compulsory core modules and an optional module, to be taken throughout the two years, depending upon the fellows existing knowledge and skills and interests.

The practical training entails a 23 month field placement at a European public health institute, working at a national or regional level. Supervision for this placement is provided by an on site senior epidemiologists and EPIET coordinators.

In addition to the above training, EPIET fellows meet three times at the European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE), which is the annual conference of ECDC. At the conferences, fellows have the opportunity to present results of interventions and research, and to evaluate progress towards achieving the programme’s objectives.

Between 1995 and 2008, 211 fellows graduated from EPIET the graduates came from 30 countries and were hosted by 21 MSs. The majority of fellows originate from, and are hosted by Germany, France and the United Kingdom.
D2.4 Curricula development and review
The EPIET curriculum is set up to deliver independent, mid-level epidemiologists with skills in the areas of surveillance, outbreak investigations, field-based epidemiological studies, scientific communication and teaching (Bosman et al., 2009).

The ECDC Competent Bodies for Training in each of the EU MSs advise ECDC on the Training Strategy and the Core Competencies to be trained in EPIET. The EPIET Training Site Forum (ETSF) advises ECDC on operational, technical and pedagogical issues regarding EPIET. The ETSF consists of representatives of all EPIET training sites. Both groups meet once a year.

D2.5 Application, selection and exemptions
Applicants for EPIET are selected on basis of qualifications, professional and personal characteristics and interpersonal skills, and also on geographical spread. The specific entry requirements for all fellows are:

- nationals of Member States of the EU, EEA or EFTA, Iceland, Liechtenstein or Norway
- a Masters level degree, diploma, or equivalent in public health or a related subject
- at least one year’s practice in public health or epidemiology
- a thorough knowledge of at least two official languages of the EU, of which one must be English
- meet the character requirements for the duties involved, and
- be physically fit to perform the duties linked to the tasks.

The selection process differs depending on the EPIET track. Details of the selection process for each track are provided below.

EU-track selection process
The selection process for the EU-track has a number of stages to identify the most appropriate candidates. The details of the selection process are presented in Table D2.1.
**Table D2.1: European Programme for Intervention Epidemiology Training European Union–track selection process**

<table>
<thead>
<tr>
<th>Selection process stage</th>
<th>Stage details</th>
</tr>
</thead>
<tbody>
<tr>
<td>First round</td>
<td>The ECDC checks the applicant's eligibility to participate in the EU-track training programme. Eligible candidate’s documents (CVs and supporting documents) are then sent to the candidate’s home country for review (represented by the EPIET Training Site Forum or Competent Bodies for Training). They interview at least three candidates from their country and rank and score at least the top two.</td>
</tr>
<tr>
<td>Second round</td>
<td>The EPIET selection panel reviews and scores the CVs of all eligible applicants ranked first or second by the Member States, in order to decide on the invitations to the third round of face-to-face interviews. The EPIET/ECDC Selection committee select a list of those to be called for the third round - the face-to-face interviews. Invited applicants send in a list of their three preferred host institutes. The available host institutes receive the application documents of the applicants interested in their site as preparation for the interviews.</td>
</tr>
<tr>
<td>Third round</td>
<td>Interviews are conducted with invited applicants in three phases:</td>
</tr>
<tr>
<td></td>
<td>First phase</td>
</tr>
<tr>
<td></td>
<td>Selection interviews: The EPIET selection panel will interview and rank all invited applicants and select applicants that will go on to the second phase.</td>
</tr>
<tr>
<td></td>
<td>Second phase</td>
</tr>
<tr>
<td></td>
<td>Placement interviews: Selected applicants will participate in interviews with host site representatives, in order to come to a preference ranking for placements. Host sites also rank applicants.</td>
</tr>
<tr>
<td></td>
<td>Third phase</td>
</tr>
<tr>
<td></td>
<td>Matching round: Final matching of host institutes and applicants.</td>
</tr>
<tr>
<td>Fourth round</td>
<td>The EPIET selection panel consults the host sites representatives before deciding on the selection of fellows, their placement and the reserve list. The process aims at achieving the optimal spread of involvement among participating countries.</td>
</tr>
<tr>
<td>Fifth round</td>
<td>Finally, the centre’s Director will appoint successful candidates.</td>
</tr>
</tbody>
</table>

**Member State-track selection process**

The first stage of the MS-track selection process is that the ECDC invites interested MSs to apply to host one of the 10 available MS-track EPIET fellowships. The ECDC/EPIET then evaluate whether the criteria for hosting an EPIET fellow by the applying MS site are fulfilled. Where necessary, an initial site appraisal is arranged and additional support provided to supervisors and training sites. If the conclusion of the site appraisal is that the site is satisfactory, priority is given to MSs who have fewer EPIET alumni, EPIET training sites and fellows from the MS who have graduated from EPIET.

The MS has the sole responsibility of appointing the EPIET fellow, as the MS-track fellows will receive their salary from the MS training site. The selection of EPEIT fellows for the MS-track involves the following steps:

- the MS calls for applications inside and/or outside their public health institutions, using the EPIET selection criteria
- the MS creates a shortlist of potential candidates for validation of the training inclusion criteria by the EPIET coordinators
- one of the EPIET coordinators participates in a telephone interview with the shortlisted candidates to check the eligibility of the candidate, especially their knowledge of English
- the final choice of the candidate is made by the MS, among all shortlisted candidates who meet the inclusion criteria for EPIET training.
D2.6 Training delivery and assessment

The theoretical component (3-week introductory course and seven one-week modules) of EPIET are delivered as residential courses at various locations throughout Europe. Most of these are taught by professionals from public health institutes in the EU and approximately one-third of the trainers are EPIET alumni.

The practical training component of EPIET (a 23 month field placement) is undertaken at a European public health institute. EPIET fellows work at a national or regional level and supervision is provided by an on-site senior epidemiologist and an EPIET coordinator.

Assessment of fellows is made on a continual basis throughout the 2-year training period. On beginning the EPIET programme, fellows are asked to rate their core skills on joining the scheme and review development of these skills throughout the programme. Regular updated incremental progress reports and a final report on the activities and achievements of the fellow are submitted to supervisors and EPIET co-coordinators for review. These reports detail the development of the skills and competencies of the fellow and provide a means of assessing whether the fellow has achieved the core skills in order to merit the award of the diploma.

The ECDC produce a guide of ‘core competencies’ for public health epidemiologists in the EU. This list is used for the evaluation of trainees and in the accreditation of training schemes.

D2.7 Training outcomes

At the end of the EPIET training programme, participants should be able to:

- investigate outbreaks
- plan, implement, or evaluate a surveillance system
- develop a research project on a relevant public health issue
- gain acquaintance with laboratory techniques
- present and publish the results of their work to the scientific community, and
- teach epidemiology to public health professionals.

EPIET fellows who have completed their 2-year training and achieved all training objectives are awarded an EPIET diploma; this is presented during an EPIET Award Ceremony.

D2.8 Other training providers

The delivery of the theoretical training is coordinated and provided by ECDC and hence, there is no scope for other training providers independent of the programme to provide training as part of the programme. However, public health institutions in MSs can

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10 Core skills in EPIET: skills matrix rating template available from ECDC.
become a host site for an EPIET fellow provided they meet the relevant criteria. Criteria for being an EPIET training site include:

- proving access to activities in field epidemiology
- provide personal supervision to a fellow by a senior field epidemiologist
- provide adequate workspace and IT equipment for the EPIET fellow.

The practical steps of the recruitment of new training sites involves:

- the public health institute or organisation providing EPIET with a brief overview of the relevant output of the previous year, in regard to surveillance, field research, outbreak investigation, scientific communication and teaching/training
- EPIET conducting a formal site visit
- the public health institute or organisation appointing a senior epidemiologist as a facilitator for at least 2-weeks in the next EPIET introductory course.

D2.9 Professional status/recognition
No formal professional status is gained but trainees gain a diploma after completing the training programme.

D2.10 Placements and secondments
Trainees spend 23 months on a placement, learning by doing practical training at a European public health institute. On site supervision is provided by senior epidemiologists and EPIET coordinators.

Assessment: The EPIET co-ordinators review the work of trainees/fellows with additional supervision on site by:

- at least one senior epidemiologist spending at least on average 4 hours/week contact time
- draft protocols/reports/manuscripts produced by the fellow are sent to all relevant coordinators
- final work is uploaded onto a virtual office environment for evaluation.

Training sites are continually assessed by the EPIET co-ordinators, the EPIET Training Site Forum (ETSF) and the Technical Expert Groups. Most of the institutes participating in the EPIET programme have national or regional responsibility in surveillance, disease control and intervention. At present, there are 30 different institutes participating in the training scheme with 13 regional sites across Europe.

D2.11 Continuing professional development
There are no formal continuing professional development requirements after the trainees have graduated from EPIET. However, graduates are entitled to join the EPIET Alumni Network (EAN). This was created to help develop and maintain a network of European public health epidemiologists that have participated in the EPIET programme or other European Field Epidemiology Training Programmes (FETP). EAN aims to be a resource for EPIET and for European public health with the objectives to:
assist in the maintenance and development of contacts between members to create strong integration within and between past and current European EPIET and FETP cohorts of fellows

share and exchange professional experiences, information and skills among members

constitute and enable access to a pool of expertise of trained European field epidemiologists, who can provide epidemiological and public health expertise for members, their organisations, and other public and private organisations

take part and assist in the promotion, development and delivery of training in field epidemiology and public health

assist at European field epidemiology meetings such as the ESCAIDE

provide support at local level to European EPIET and FETP fellows, including practical and technical assistance (in a complementary manner without interference with supervision) and including mentoring where appropriate.

D2.12 Promotion and awareness

The EPIET website is a comprehensive source of information about the scheme, its entry requirements, information about the institutions and professionals involved in the scheme. Course outlines, programmes and course material are also available on the website. Calls for applications are advertised yearly through the ECDC website.

D2.13 Quality control of training scheme; supervisors and trainers

Quality assurance and control of the training scheme are achieved in a number of ways. In particular, the training scheme co-ordinators identify and appraise new training sites and regularly evaluate existing training sites to ensure they meet the relevant EPIET criteria. They also identify training needs for supervisors and provide ongoing support for supervisors in an advisory role. Several bodies are able to do this, through the EPIET Training Site Forum (ETSF).

The scope of the Competent Body for Training on EPIET issues is:

- to provide strategic advice and suggestions for future developments of EPIET and similar training programmes
- to advise on implementation and review of the EPIET training objectives
- to assess the programme outcomes regularly at scientific and technical levels compared to the established training needs.

In addition, the scope of the EPIET Technical Expert Group is:

- to provide technical input from training sites in terms of feedback on the curriculum and current programme (e.g. on administration, communication, training resources and tools, preparation and execution of modules, etc)
- to identify training needs for trainers
- to facilitate and participate in recruitment of fellows and facilitators.

The ETSF includes all representatives of EPIET training sites plus representatives from EAN; ETSF members are nominated by the different participating institutions.
D2.14  Staffing requirements
EPIET is run by 5.5 full-time equivalent (FTE) Scientific Coordinators across Europe, who are supported by 2.3 FTE logistical administrators and 2 additional support staff, including a statistician. In addition, full and part-time scientific coordinators are located in the national public health institutes in Germany, France, Spain and the UK. This is supported by trainers in host institutions- there are 43 members of the ETSF currently.

D2.15  Finance and funding
The EPIET scheme was initially funded by the European Commission and EU MSs until 2007. Since 2007 the programme has been funded by the ECDC and MSs. Fellows on the EU-track are funded by the ECDC for the duration of the 2-years. This funding consists of a monthly grant, travel expenses and costs for removals incurred at the beginning and end of the fellowship. Fellows are also eligible to claim necessary pension payments and insurances, up to 1000 Euros per month.

The MS-track fellows are funded by the MS of the fellow’s hosting institution country. Starting in September 2011, 10 additional seats have been planned for a partially ECDC-funded MS-track in addition to the 18 grants for the EPIET EU-track. The funding arrangements for the various parts of EPIET are illustrated in Figure D2.2.
D2.16 Evaluation of the programme

An external independent review of EPIET was conducted by the Royal Tropical Institute, Development Policy and Practice, Amsterdam in 2009/10 and the recommendations taken on board by the ECDC to promote access to the training scheme by disadvantaged MS. While the evaluation found that the EPIET programme itself was of excellent quality, there were relevant conclusions and recommendations in four ‘key areas’:

- Increase programme ‘ownership’ of Member States equitably (selecting fellows and addressing country-specific needs)
- Increase the number of fellows trained (to address the country needs more adequately)
- Address brain-drain issues within the EU and strategy for “repatriation” of fellows
- Expand the scope of the programme to a broader public health approach.

The members of the ECDC Advisory Forum endorsed the reorganisation and expansion of the EPIET programme to better respond to the needs of the MSs. This led to the development of the MS-Track route in 2010-11. The MS-track aimed at building capacity in MSs that have so far not been able to benefit from the EPIET programme in terms of returning EPIET graduates or in terms of establishing field training sites within their country.
D3   THE INSTITUTE OF RISK MANAGEMENT

D3.1   Introduction
The Institute of Risk Management (IRM) was set up in 1986 and is risk management’s leading professional education, training and knowledge organisation. The IRM has four key aims:

- **Recognition** – ensuring that IRM membership provides professional recognition and support for risk managers by providing challenging professional qualifications and promoting their value to key audiences
- **Networking** – to provide opportunities for members to network to develop themselves as professionals, share knowledge and experience and to facilitate business contact
- **Knowledge** – to promote technical and ethical excellence in risk management
- **Career support** – to support individuals through their risk management careers

IRM’s key activities are:

- the International Diploma and International Certificate in Risk Management
- The Global Risk Management Professional Development Forum
- Annual Lecture
- Special Interest Groups
- Regional Groups
- Publications
- Specialist Training Courses

The Institute of Risk Management has five qualified member grades: Fellow, Member, Graduate, Specialist and Certificant. Currently there are over 2000 members of the IRM in 50 different countries, drawn from industry, commerce, consultancy, the public sector and the charitable and not-for-profit sector. Amongst those represented in IRM membership are: bankers, lawyers, auditors, health and safety professionals and engineers.

D3.2   Overview of training and professional development scheme

*Introduction*

The IRM offers two qualifications in risk management: the International Certificate in Risk Management and the International Diploma in Risk Management. Both are offered on a flexible distance learning basis, allowing students the flexibility to fit studies around other commitments.

Both the Certificate and Diploma form an integral part of IRM’s membership structure and learning pyramid (Figure D3.1), with completion of either (or similar qualifications) forming part of the requirements of IRM membership.
The International Certificate in Risk Management is a broad-based introductory qualification that provides an introduction to the theory and practice of risk management. The Certificate comprises of six sections:

- Introduction to Risk Management
- Risk Strategy
- Risk Assessment
- Risk and Organisations
- Risk Response
- Risk Assurance and Reporting

There are no formal entry requirements for the International Certificate in Risk Management. The course takes approximately 130 hours of study to complete and is usually completed over six to nine months. The International Certificate in Risk Management is assessed by two 2-hour examinations – the first tests risk management knowledge and understanding, while the second tests students’ ability to apply their knowledge in real practical situations. Examinations take place twice a year.

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International Diploma in Risk Management

The International Diploma in Risk Management provides a broad-based post-graduate qualification for the risk management professional. The Diploma has three levels:

- **Level 1:** This consists of five core modules – Principles of Risk, Risk and Organisations, Risk Decisions, Risk Leadership, and Risk Solutions
- **Level 2:** Specialisms – students take two specialist modules, which are chosen from a list of technical and sector modules, allowing students to tailor their learning to their own role or environment.  

- **Level 3:** Practical assignment – Level 3 is assessed through completion of an 8,000 word assignment completed within 6 months, which can be based on a real situation relevant to a students’ own role or on another topic of their choosing.

Each module at Level 1 and 2 takes approximately 120–150 hours of study, depending on previous risk management knowledge and experience and is assessed by one 3-hour examination. The Diploma can be completed in two to eight years, with most students completing it in three to five years.

**D3.3 Curricula development and review**

The IRMs qualifications were developed through extensive collaboration between leading educational thinkers and academics, in partnership with practitioners from across the world. The Education Faculty of the IRM is responsible for the management and continuous review of the IRM’s qualifications. In particular, the Education Faculty is responsible for:

- the establishment, maintenance and revision of the Diploma in Risk Management and the development of new modules and materials
- the maintenance of the examination system and oversight of the development of examination and the marking of examinations
- the development of learning strategies for IRM
- the creation and monitoring of a system of reviews and performance testing

The Education Faculty is made up of a Chair and four members.

**D3.4 Application, selection and exemptions**

*International Certificate and Diploma in Risk Management*

There are no formal entry requirements to undertake the International Certificate in Risk Management, so anyone with an interest in risk management can apply. Because the Certificate is an integrated programme, no exemptions are granted.

Students are eligible to study for the Diploma if they have:

- an IRM International Certificate in Risk Management, or
- a first degree (at least 2:2) from a UK university or equivalent qualification, or

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13 Specialist modules can also be undertaken on a stand-alone basis
developing a proposed administrative framework for a health risk assessment training programme in europe

- an equivalent level qualification and at least 3 years risk management experience, or
- no formal qualifications, but 3 or more years risk management experience at a senior level

Exemptions for the Diploma are granted on a module-by-module basis and help avoid duplication of learning. Applicants are required to supply evidence that they have studied most of the material included in the module’s syllabus to an equivalent level within the past 10 years.

Membership of the Institute of Risk Management

The Institute of Risk Management has five professional and practitioner membership grades, each with differing requirements for acceptance into membership (Table D3.1).

<table>
<thead>
<tr>
<th>Membership Grade (post-nominal letters)</th>
<th>Membership criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow (FIRM)</td>
<td>IRM membership (MIRM) and 250 IRM CPD credits</td>
</tr>
<tr>
<td>Member (MIRM)</td>
<td>3 years relevant work experience and successful completion of the IRM International Diploma in Risk Management (or an equivalent risk qualification)</td>
</tr>
<tr>
<td>Graduate (GradIRM)</td>
<td>Completion of IRM International Diploma, but yet to complete three years experience</td>
</tr>
<tr>
<td>Specialist (SIMR)</td>
<td>Completed an IRM specialist course or equivalent risk-related professional qualification</td>
</tr>
<tr>
<td>Certificant (CIRM)</td>
<td>Completion of the IRM International Certificate in Risk Management.</td>
</tr>
</tbody>
</table>

Additionally, there are two student membership grades, for those studying the IRM Certificate or Diploma in Risk Management, and an Affiliate or Group Affiliate membership grade open to anyone or organisation with an interest in risk management. All applications for membership are considered by completion of the relevant application form and assessment of supporting evidence.

Benefits of membership of IRM include:

- internationally recognised post-nominal letters for qualified membership grades
- subscription to Risk Management Professional – IRMs quarterly magazine
- Risk Forum – IRM’s annual conference
- Access to a free annual lecture and member briefings
- Participation in IRMs CPD scheme
- Opportunity to participate in Special Interest Groups and Regional Members Groups

14 Group Affiliate Membership allows organisations to register 10 or more employees as Affiliates of the Institute of Risk Management
Full details of IRM membership benefits are available on the IRM website.15

D3.5 Training delivery and assessment
The International Certificate and Diploma in Risk Management are both delivered by distance learning. All the study materials for the Certificate and Diploma are provided online and hard copies of the core texts and supporting textbooks are available for purchase. In addition to the learning materials, students have access to an online discussion board to facilitate networking. The discussion board is reviewed regularly by examiners to answer queries, who can also be contacted directly by e-mail. Students also have access to past examination papers. Additionally, workshops (at additional cost) are run in the UK for each intake of students so students can meet examiners and seek assistance with their studies.

D3.6 Training outcomes
Successful completion of the Certificate or Diploma in Risk Management results in award of the qualification, with Pass, Merit or Distinction. The pass mark for all examinations is 50%.

D3.7 Other training providers
The IRM works with other training providers, through an accreditation scheme, to improve the range and quality of risk management training available. Accreditation involves the IRM formally assessing and endorsing a risk management training programme developed by another organisation or individual. Accreditation enables a training provider to:

- describe the training as ‘accredited by the IRM’, thus giving the course greater authority and distinction;
- include the IRM logo on promotional and training materials and certificates of attendance
- have accredited courses advertised on the IRM website

The process of accreditation is set out in the IRM's Accreditation Policy16 and requires a training provider to submit an Accreditation Proposal application, with an initial fee. This is reviewed by the IRM Training Committee against initial accreditation criteria. If the proposal is accepted, the training provider is then invited to submit a detailed copy of the course material, along with an appropriate fee, and a suitable person is identified to conduct a detailed review of the course material on behalf of the IRM Training Committee. If the detailed review is successful, then the IRM and training provider proceed to sign an accreditation agreement. Amongst the conditions of the accreditation agreement are that the training provider pays an annual licence fee, undergoes an annual review, submits evaluation forms to IRM the first time the course is run and, on

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request thereafter, and allows monitoring visits by IRM. The accreditation agreement also sets out how many Continuing Professional Development credits may be awarded. The issuing of certificates for each delegate on the accredited course is carried out by IRM.

D3.8 Professional status/recognition
Acceptance into one of the qualified membership grades of IRM (Fellow, Member, Practitioner, Graduate or Certificant) allows the member the right to use post-nominal letters to indicate their professional status (Table D3.1). Completion of the International Certificate in Risk Management also enables risk practitioners to qualify for entry to the ‘Register of Risk Practitioners maintained by the National Forum for Risk Management in the Public Sector (ALARM)\(^\text{17}\) and entitles the individual to use the post-nominal letters RRP.

Whilst there are no professional competencies stated, there are clearly defined criteria for IRM Membership (Table D3.1). Furthermore, all members of IRM are required to adhere to a professional code of conduct as a condition of membership.\(^\text{18}\)

D3.9 Placements and secondments
The Certificate or Diploma in Risk Management does not involve undertaking a secondment or under-going a period of consolidation. Activities undertaken at a workplace (e.g. developing an in-house risk management training programme, giving an in-house presentation, etc.) may, however, contribute to Continuing Professional Development (CPD) credits, which is a requirement of IRM membership (see below). A minimum of 250 CPD credits and two years as a Member of the IRM must be achieved prior to applying for Fellowship of the IRM and, as a result, opportunities to develop risk management skills at a place of work are likely to be an important contribution to this.

D3.10 Continuing Professional Development
The IRM operates a mandatory Continuing Professional Development (CPD) scheme, which is considered integral to development as an individual risk manager. In particular, it is considered that CPD:

- optimises career opportunities
- demonstrates a commitment to professional competence
- improves the skills and knowledge available within an organisation

All qualified members (Certificants, Graduates, Members, Specialists and Fellows) are required to participate in IRM’s CPD scheme as part of their membership and continued eligibility to use post-nominal letters.


Each member is required to attain a minimum of 50 CPD points each year. Continuing Professional Development points are awarded for attending or undertaking development activities (e.g. publishing articles, authoring books, providing training, participating in a special interest group, attendance at an IRM training course, attendance at a conference, etc). A list of activities and the associated CPD credits are set out in a CPD Table\textsuperscript{19}.

Members are responsible for maintaining their own CPD records and all activities and CPD credits claimed must be evidenced. Annually, 15% of the IRM membership is randomly required to submit their CPD records to the IRM for review. Members not complying with the CPD requirements can have their membership revoked, although extenuating circumstances are considered where applicable. Certificants are exempt from the CPD scheme while studying for the International Diploma in Risk Management.

D3.11 Promotion and awareness
One of the main activities of IRM is to ensure that IRM membership provides professional recognition by providing challenging professional qualifications and promoting their value to key audiences.

D3.12 Quality control and assurance
The IRM have a stringent two stage moderation process for setting and marking examinations. This aims to ensure quality assurance, that examination papers are set in accordance with the principles set by IRM and that there is consistency in marking each exam paper.

D3.13 Staffing requirements
The IRM employs 14 staff\textsuperscript{20} based at an office in London, UK. In addition to employed staff there is the Board of Directors and a number of committees consisting of IRM members (who give their time voluntarily) and IRM staff. The Board of Directors and management committees are described below:

- The Board of Directors – this consists of a Chair, two Deputy Chairs and seven other members. All members of the Board of Directors give their time voluntarily
- Finance and General Purposes Committee – consists of two/three directors, Financial Controller, Chief Executive, accountant and Chairman and meets six times a year
- Governance Committee – consists of two/three directors, Chief Executive, auditor, Company Secretary and Chairman and meets six times a year.


\textsuperscript{20} These consist of: Chief Executive Officer, Deputy Chief Executive, Development Manager, Finance Controller, Marketing Manager, Events and Project Assistant Manager, Membership Manager, Education and Training Assistant Manager, Office Manager and Personal Assistant, Education and Training Executive, Business Services Executive, Marketing Executive, Training Development Executive, and Education and Training Executive
Education Faculty – consists of a Chair and four members

Additionally, advisory groups, project teams and stakeholder forums are set up as necessary.

**D3.14 Finance and funding**

The IRM is run as a not-for-profit organisation. The IRM is financed through a number of income sources, including:

- Membership fees – these increase with the seniority of membership and are paid annually\(^{21}\). A one off joining fee is also payable for new members.
- Certificate and Diploma fees – a fee is paid on enrolment on the Certificate in Risk Management\(^{22}\). For the Diploma in Risk Management, a one off admission fee is payable, along with a student subscription fee, module fee and online resources fee per module\(^{23}\). Fees are also payable for attendance at optional workshops and for retakes and deferrals of examinations.
- Accreditation fees of risk management courses\(^{24}\) – an initial application fee is payable, followed by a fee for detailed review of the course material. Fees are also payable for an annual licence and a per delegate fee based on the number of certificates issued by IRM
- Advertising on the IRM website and journal\(^{25}\)

Special reduced membership and Certificate and Diploma fees are available for applicants from countries with a low Gross Domestic Product.

**D3.15 Other considerations**

The IRM holds winter and summer examinations for the International Certificate in Risk Management and summer examinations only for the International Diploma in Risk Management. Examinations are taken at examination centres, which are available in 30 countries worldwide, and can be set-up almost anywhere in the world. Examination day arrangements for all centres are currently made by the Institute of Chartered Secretaries and Administrators. Where an examination centre is not currently established, students can apply to take examinations at a specially established examination centre, which are normally British Council offices in the country of residence.

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\(^{21}\) These range from £73 to £145 per member for annual membership until 30 June 2010. The one off joining fee is £82 \(^{22}\) This is £1390.50 for early enrolment and £1545 for standard enrolment \(^{23}\) These are (for the period until 15 Dec 09): one of admission fee - £106, Student subscription - £116, Module fee - £257, online resources fee per module - £103, Level 3 practical assignment - £257 \(^{24}\) As of March 2009, these were: Accreditation proposal fee - £500, Detailed review fee - £1500 per day of course, Annual renewal fee - £1000, Per delegate fee - £10 to £25 depending on number of delegates \(^{25}\) For example, a standard recruitment advert is £250 for one month
D4 PUBLIC HEALTH TRAINING IN THE UNITED KINGDOM

D4.1 Introduction
Public health training in the United Kingdom (UK) is overseen by two main bodies: the UK Public Health Register (UKPHR) and the General Medical Council (GMC). The UK Public Health Register was established in May 2003 as an independent multidisciplinary register to protect public health by ensuring that only competent public health professionals are registered and that high standards of practice are maintained. The General Medical Council is responsible for maintaining registers of qualified doctors, including those working in public health, regulating all postgraduate medical training in the UK and awarding the Certificate of Completion of Training (CCT).

The Faculty of Public Health works with both the UKPHR and GMC to set standards, maintain the quality of public health training in the UK and maintain professional standards in the discipline. It is also the professional home for more than 3000 professionals working in public health. It was established as a registered charity in 1972 and is an independently constituted body with its own membership, governance structure and financial arrangements.

Public health professional training in the UK is primarily divided into two schemes:

- The Public Health Specialty Training Scheme: this aims to train professionals to a consultant level in public health. This is achieved through a combination of academic learning and on-the-job experience
- The Public Health Practitioner Scheme: this is aimed at practicing public health professionals and seeks to recognise their competence as public health practitioners through assessment by portfolio

More details about both schemes are presented below.

D4.2 Public Health Specialty Training Scheme

Introduction
The Public Health Specialty Training Scheme is a five year specialty training programme in public health, is fully funded and leads to entry on to the specialist register and the eligibility to apply for a consultant post in public health. It is open to professionals from both medical and non-medical backgrounds.

Curriculum development and review
The Public Health Specialty Training has a curriculum which provides a framework within which trainees and trainers can determine and understand the knowledge, skills, attitudes and behaviours which will allow a trainee to achieve the level of competence required of a specialist in the field (FPH, 2010). The curriculum covers the following broad competency areas:

- Knowledge requirements to underpin specialist public health practice
- Principles of ethical and professional practice through Good Public Health Practice
- Curriculum core requirements described in nine key areas of public health practice
- Surveillance and assessment of the population’s health and well-being
- Assessing the evidence of effectiveness of health and healthcare interventions, programmes and services
- Policy and strategy development and implementation
- Strategic leadership and collaborative working for health
- Health improvement
- Health protection
- Health and social service quality
- Public health intelligence
- Academic public health

The overall curriculum was derived from a description of what a consultant in public health is able to do, in what setting and how they deliver their service, and the content of the curriculum was developed from existing competency frameworks. The development of the curriculum also included wide representation from practising public health professionals and trainees, and was agreed by various committees of the FPH (FPH, 2010).

The Faculty has a commitment to update and develop the curriculum in line with the principles and standards outlined by the regulators. Responsibility for the curriculum development lies with the Academic Registrar, accountable through the Curriculum Committee to the Standards Committee of the FPH.

Application and selection

In order to be eligible for entry to the public health speciality training, applicants must be eligible to work in the UK and meet the requirements, as set out in Box D4.1.
**BoxD4.1  Entry requirements for the UK Public Health Speciality Training Scheme**

<table>
<thead>
<tr>
<th>Medical graduates</th>
<th>Other graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full General Medical Council registration</td>
<td>A good first degree in a relevant discipline (equivalent to a 2:1 or above or a relevant higher degree)</td>
</tr>
<tr>
<td>Completion of an F2 programme or equivalent</td>
<td>At least three years post-degree experience in a relevant setting</td>
</tr>
</tbody>
</table>

**All applicants**

- Basic understanding of public health
- Awareness of the determinants of health/interest in reducing health inequality
- Commitment to public health principles
- Leadership, resilience and influencing skills
- Strategic outlook and vision
- Interest in the evidence base
- Good communication skills – listening, verbal, presentational and written
- Fluency in spoken and written English
- Non hierarchical and collaborative working style
- Significant numeracy and IT skills
- Desire to keep learning
- Self-motivation
- Professional integrity


Recruitment into public health specialty training is via a national process and coordinated by the FPH and a national recruitment taskforce group. Applicants are initially shortlisted against the criteria (see Box D4.1); assessment centres are then used to select candidates using a combination of validated numeracy and communication tests and a number of small panel based assessments. Typically x numbers of trainees are recruited to the scheme annually.

**Training delivery and assessment**

Public Health training usually lasts 48 months, full-time. Part-time training is proportionately longer. The five years usually includes one year (full or part-time) on an academic course, leading to a Masters or Diploma in Public Health, and 48 months in higher specialist training posts. The curriculum has been developed around a model of three phases of learning. These phases reflect an early induction and basic grounding in public health; acquisition of the knowledge base; basic skills training; consolidation of core advanced skills and an option for trainee selected components, which will allow development of defined interest or practice within a specified setting (Table D4.1). The curriculum has been designed to allow the trainee a graded or spiral progression through competency acquisition with increasing levels of complexity and responsibility, leading to an ability to integrate competencies across work areas to demonstrate complex consultant level practice. Passage between phases is dependent on success both in examinations and in satisfactory workplace-based assessment. An overview of the training pathway is presented in Figure D4.1.
Table D4.1 Summary of the training content for the Public Health Speciality Training Scheme

<table>
<thead>
<tr>
<th>Phases of learning</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Phase 1 combines early induction to training and introduction to basic core public health skills with acquisition of knowledge. The induction will include workplace and human resources policies and practice. Phase 1 of training usually takes a maximum of two years, up to the time that the trainee can demonstrate a secure public health knowledge base (knows and knows how). Transition from phase 1 to phase 2 requires a pass at the examination for Part A MFPH and a satisfactory assessment in phase 1 learning outcomes in the workplace.</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Phase 2 (typically 6–9 months) sees trainees begin to further develop their core public health skills (examined via the Part B MFPH examination) and basic practical competence, typically through clearly defined service work. This uses their knowledge base acquired in phase 1 and applies this in increasingly complex practical settings. The end of this phase is completed after a satisfactory performance at the Part B MFPH examination and satisfactory assessment of phase 2 learning outcomes in the workplace.</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Phase 3 allows the trainee to consolidate core skills in the practice of public health and to develop specific interests which will enhance career opportunity. This phase of training typically lasts from 24–30 months: from the time the trainee passes the Part B MFPH examination until they are awarded their CCT. Satisfactory completion of training is not simply a signing off of individual learning outcomes but will also require evidence both of experience of several settings as the context for competence and of integration of competencies to evidence performance at consultant level.</td>
</tr>
</tbody>
</table>

Abbreviations: CCT, Certificate of Completion of Training; MFPH, Member of the Faculty of Public Health
Figure D4.1  Overview of the public health specialist training pathway

Academic learning is mainly delivered through formal academic Masters level courses. Teaching/learning styles typically include didactic presentation of core knowledge, group based discussion and application of theory and self directed learning through peer led group work or individual study for written assignments.

Work based experiential learning is delivered through staged complexity of service work with regular feedback and opportunity for reflection. Mentoring support is given by an accredited educational supervisor, more experienced trainees or other senior public health professionals. All trainees have a learning contract, renewed on at least an annual basis and at every change of training location. Learning contracts encourage reflective practice through feedback on competence from multiple source feedback, observation of practical skills, discussions of work cases, mini-case exercises and tutorials. Learning contracts also encourage reflective practice through trainee’s ownership of their educational objectives, clear definition of their training needs and negotiation of experiences to meet these needs.

Trainees are required to sit the Faculty of Public Health’s Part A membership exam between one and two years after starting the programme, and the Part B exam six to
nine months later. The Part A tests trainees' knowledge of the skills they need to specialise, while the Part B exam requires trainees to demonstrate that they can translate their knowledge effectively into practice. It is not necessary to hold a medical qualification to sit these examinations, nor is it necessary to be enrolled in a training course. Trainees are also supported through on-going assessment in the workplace.

Those who already have the necessary knowledge base, or who have already completed a Masters in Public Health may be able to reduce their total training time. Previous experience may also reduce training time, if trainees can show the competencies that they have gained through this experience.

**Training outcomes**

Once a trainee has passed both exams and has satisfactorily shown that they have gained all the skills required by the curriculum, they will be eligible for specialist registration. Medical trainees will then be able to register with the GMC as specialists, while other graduate trainees will be able to register with the UKPHR. At this point all are eligible for consultant or equivalent posts within the UK, National Health Service.

**Training providers**

Public health training is delivered on a deanery or multi-deanery basis through programmes and speciality schools (deaneries are in charge of all medical training in a demarcated geographical area). The delivery of training is overseen by a Training Programme Director of Health of School. The deaneries are also responsible for trainers, educational supervisors and educational leaders, their training needs and educational development.

All trainees have a designated educational supervisor. A project supervisor may take responsibility for supervising specific areas of work, overall responsibility remaining with the educational supervisor. Trainees work with a level of supervision commensurate with their experience and level of competence. All trainees also have an academic supervisor who support preparation for Part A MFPH, provide academic rigour for service work and encourage publication and dissemination of work. Educational supervisors are expected to meet regularly with their trainee to review the learning contract and current service work progress and learning. Regular three way meetings between trainee, academic and educational supervisors are encouraged. All supervisors are accredited appropriately for their level of supervision.

**Professional status/recognition**

The Faculty of Public Health has various different routes into membership that vary according to an individual’s level of training, experience or contribution to the field of public health. These are:
• Trainee Membership (Specialist Registrar/Specialist Trainee/Specialty Registrar Membership): available only to those currently on a recognised specialty training scheme
• Diplomate Membership (DFPH): available to those individuals passing the Part A MFPH examination
• Membership (MFPH): available to individuals passing both the Part A and Part B membership examinations
• Fellowship (FFPH): available to members and non-members who have been accepted onto a specialist register in public health, usually the GMC Specialist Register or the UKPHR. This is the FPH highest category of membership

The Faculty of Public Health also has a reciprocal agreement with the Hong Kong Community College of Medicine (HKCCM) that Hong Kong Diplomate members of FPH, who are registered with the HKCCM and have been accepted onto the Specialist Register of the Medical Council of Hong Kong, are eligible for Fellowship.

Placements and secondments

During training, trainees rotate through various placements in different settings and public health areas. This allows trainees the opportunity to develop the skills to meet their chosen career aims. Training placements are usually within one deanery, but may be across deaneries in special circumstances. Each programme has a range of approved posts at Primary Care Trust (PCT)/Health Board level into which new recruits will normally be placed during the first two stages of training. These posts are similar across the UK. All programmes also hold number of specialist posts which are similar between programmes, which allow trainees to develop special interests in defined settings.

The Faculty of Public Health recognises that most consultants will work in a PCT/Health Board and, as such, the majority of trainees will be placed initially in PCTs/Health Boards which will allow early exposure to routine public health practice. During phase 1 or 2, trainees will also undertake a three-month attachment to a health protection unit or consultant in communicable disease control, where they acquire many of the public health skills to deal with health protection issues. From then on, during Phase 2 and 2, trainees have the opportunity to undertake training in a variety of settings to give them an opportunity to experience the breadth of public health practice (FPH, 2010).

Continuing professional development

Once an individual has completed their training, they then have a continuing professional obligation to undertake continuing professional development (CPD). The overall aim of the CPD is to ensure that those who work in the field develop and maintain the necessary knowledge, skills and attributes to practise effectively and work towards improving the health of the population.

In order to comply with the Faculty's minimum standards for CPD and to remain in good standing, all Faculty members must either submit a satisfactory CPD return for the
previous calendar year, or have been formally exempted by the Faculty from this requirement. The standard requirement is 50 to 100 CPD credits (1 credit = 1 hour of CPD) per year, spread across a range of areas of public health competence and involving a range of different CPD activities (e.g. research, attending courses, teaching, conferences, on-the-job learning, etc.).

Promotion and awareness

The Faculty of Public Health website is a comprehensive source of information about the scheme, its entry requirements, information about the institutions and professionals involved in the scheme. Calls for applications are advertised yearly through the FPH website.

Quality control and assurance

The UK Public Health Register (UKPHR) was established in May 2003 as an independent multidisciplinary register to protect public health by ensuring that only competent public health professionals are registered and that high standards of practice are maintained.

The General Medical Council (GMC) is responsible for maintaining registers of qualified doctors, including the Specialist Register, for disciplining those guilty of professional misconduct and for co-coordinating all stages of medical education. Also, the GMC regulates all postgraduate medical training in the United Kingdom and awards the Certificate of Completion of Training (CCT). It also awards other certificates required by the European Medical Directive on the recommendations of its constituent Colleges and Faculties.

Finance and funding

The Faculty is entirely self-supporting, largely from the subscriptions of members, but also from investment income, examination fees and educational conferences. An NHS Deanery is a regional organisation, within the structure of the UK NHS. Trainees are employed by the Deaneries for the duration of their training and, hence, receive an income from the Deaneries.

D4.3 UKPHR Public Health Practitioner

Introduction

The UK Public Health Register (UKPHR) was, until recently, only open to public health professionals working at a specialist level. However, in April 2011, the UKPHR was opened up to public health practitioners – someone who has autonomy in specific areas of public health work, continually developing their area of work and supporting others to understand it. Registration is designed to assure public, employers and commissioners
that public health professionals are appropriately qualified and competent, providing confidence in the service.

**Overview of the Public Health Practitioner Development Programme**

The Public Health Practitioner Development Programme is not a training programme, but is a scheme that allows practitioners to be registered with UKPHR and recognised as a competent public health practitioner. The scheme requires the development and completion of a portfolio, gathering evidence against a standard set of Public Health Practitioner Standards. Candidates are expected to write commentaries about their contribution to public health to demonstrate knowledge and understanding of this field of work. The portfolio is to be composed of a minimum of three pieces of work, of which two pieces of work must cover technical competencies. Half of the evidence should be recent i.e. past 3 years.

The required skills and knowledge have been framed around four areas of practice on which a practitioner needs to provide evidence to be registered as a public health practitioner.

- Professional and ethical practice – this should be at the heart of everything a public health practitioner does
- Technical competencies in public health – covers the essential knowledge and skills that anyone working in public health needs to have
- Application of public health competencies to public health work – this relates to the specific functions that public health practitioners undertake
- Underpinning skills and knowledge – needed by all public health practitioners to act effectively and achieve improvements in population health and wellbeing.

Practitioners are able to access two different levels of support following an application process. These are:

- Fast-track: suited to practitioners who have started developing a portfolio, gathering evidence, writing reflections, etc. and only have one or two competency gaps which can be easily addressed
- Support track: suited to practitioners who have not previously considered developing a portfolio

Practitioners wishing to develop their portfolios, with a view of applying to the UKPHR for registration as Public Health Practitioners, are offered a range of support through CPD. Public Health mentors also provide candidates with support in self-assessment, collating evidence and demonstrating competence. Trained assessors and verifiers are also available to review portfolio commentaries and evidence. This process is illustrated in Figure D4.2.
Figure D4.2: Overview of the process for practitioner assessment

**APPLICANT**
Gathers evidence against the standards using the guidance and examples provided by the UKPHR.

Iterative process of clarification and resubmission until assessor is satisfied standards have been met.

**ASSESSOR**
Has a sound working knowledge of the public health area of work that the applicant is involved in.
Need not be a registered public health professional.

Assessor signs off all standards as being met.
Application passed to Verifier.

**VERIFIER**
Must be a Registered Public Health Specialist for 3 years + (with GMC, GDC, and UKPHR).
Makes recommendation to the appropriate Verification Panel.

Verification panel agrees that the process has been followed and the standards have been met.

Applicant advised to retain completed application for registration with UKPHR.

From: Public Health Practitioners Assessment Schemes Framework & Guidance Vs 3 May 2011, (Source: UKPHR)
D5 EUROPEAN REGISTER OF TOXICOLOGISTS

D5.1 Introduction
The European Register of Toxicologists is maintained by the Federation of European Toxicologists and European Societies of Toxicology (EUROTOX) and is a listing of toxicologists who excel by high standards of education, skills, experience and professional standing. The European Register of Toxicologists was established in 1994 and the title ‘European Registered Toxicologist’ (ERT) is accorded by EUROTOX to individuals who have been nominated by their National Toxicology Register and comply with EUROTOX criteria for registration.

D5.2 Aims and objectives
The aim of the European Register of Toxicologists is to promote toxicology standards and to serve to advance harmonization of the national toxicology societies registration procedures.

D5.3 Requirements for registration
The requirements for individuals to be registered as ERT cover four main areas: educational background, continuing professional education, theoretical and practical training, and specialisation (Figure D5.1).

Figure D5.1: Summary of European Registered Toxicologist (ERT) registration requirements

European Registered Toxicologists must be in good standing, demonstrate on-going professional development and be currently active in the subject. The following sections explain in more detail the specific registration requirements for the European Register of Toxicologists.
Basic educational background

The basic educational background requires a university degree (3 year undergraduate honours degree) in a discipline with a relevant link to toxicology, including biomedical sciences, biology, pharmaceutical sciences, medicine, veterinary, food and environmental sciences, pharmacology, toxicology chemistry and agronomy.

Theoretical and practical training

As the basic educational background for toxicologists is heterogeneous, great emphasis is attached to post-graduate training, which must be focused on a number of topics that are defined by EUROTOX. The topics are presented in Box D5.1. Topics 1 to 13 are mandatory and two elective modules out of 14 to 22 are also obligatory.

<table>
<thead>
<tr>
<th>Mandatory topics</th>
<th>Elective topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Animal science</td>
<td>15. Safety assessment of food, cosmetics and other consumer products, regulations</td>
</tr>
<tr>
<td>3. Experimental design</td>
<td>16. Ecotoxicology</td>
</tr>
<tr>
<td>4. Metabolism and kinetics of xenobiotics</td>
<td>17. Risk analysis: assessment, communication and management of risk</td>
</tr>
<tr>
<td>5. Organ toxicology and toxicological pathology</td>
<td>18. Neurotoxicology and behavioural toxicology</td>
</tr>
<tr>
<td>8. Epidemiology, toxicogenetics</td>
<td>21. Computational toxicology</td>
</tr>
<tr>
<td>10. Mutagenesis and carcinogenesis</td>
<td></td>
</tr>
<tr>
<td>11. Reproductive and developmental toxicology</td>
<td></td>
</tr>
<tr>
<td>12. Immunotoxicology</td>
<td></td>
</tr>
<tr>
<td>13. Regulatory toxicology</td>
<td></td>
</tr>
</tbody>
</table>

It is possible that some parts of the syllabus can be certified if they have been covered in an undergraduate or post-graduate degree. Otherwise, EUROTOX estimate that each module will involve 3–5 days (and even up to 10 days) of contact time (except 1). Candidates for registration are expected to present credits in all 15 topics. In principle, credits can be obtained from modules based in more than one country.

In addition to the proposed theoretical training, the achievement of appropriate practical training and experience is seen as indispensable. The acquisition of practical skills in different subjects is expected for a minimum of 5 years. It is recognised that the way that such training is achieved can vary depending on the specific activity of the candidate. For example, a toxicologist working in the field of research will most likely acquire an intensive experience being based in a single department, while individuals working in regulatory bodies or private institutions are expected to acquire a general training. Within this period, a practical awareness (not necessarily hands-on) concerning the
following topics is expected to have been achieved, with in-depth knowledge in at least two of them:

- post-mortem methods and gross pathology; microscopic identification of the major organs; microscopic recognition of the major pathological processes; foetal and neonatal examination for malformations
- making observations and records of signs in animals and humans; in vivo monitoring; biomonitoring; biomarkers
- basic principles of cell culture microbiological methods, including applied methodology such as the Ames Test; recognition of basic chromosomal aberrations; blood film analysis; sub-cellular fractionation techniques
- standard analytical methods and techniques, e.g. spectrophotometry, gas chromatography, mass spectrometry, and high performance liquid chromatography; biochemical and molecular techniques: e.g. protein determination, enzyme activity, blotting and antibody-based techniques, radiochemistry, reverse-transcriptase and real time polymerase chain reaction, omics techniques
- design of experiments, biometric and statistical procedures, data retrieval, data derivation, computer assisted technologies, databases, databanks, and data acquisition
- determination of pharmacokinetic parameters and compound metabolism
- procedures in risk analysis, regulatory toxicology, data reliability and relevance, risk assessment experience under mentorship.

Continuing education

Continuing education in toxicology is also a pre-requisite necessary for registration and re-registration. This can be achieved through the following activities:

- attendance of meetings, symposia and refresher courses
- attendance of short courses, speciality meetings, workshops and seminars
- regular consultation of texts and literature sources
- performance of risk assessment or regulatory activity.

These activities must comprise at least 5 working days per year.

Specialisation

Candidates also have to demonstrate their active professional participation in the field of toxicology. Despite the difficulties of defining the general role of a toxicologist because of the existence of different scientific backgrounds and broad areas of application, toxicologists are divided, according to their field of activity, as follows:

- education
- basic and applied research
- risk assessment
- regulation.
Depending on their scientific interests and the area of application, toxicologists are also regarded as occupying their different professional roles within four major fields:

- academia (education and research)
- industry (applied research, risk assessment, development of safe products)
- advisory (ecotoxicology, clinical toxicology, forensic toxicology)
- regulation (advise regulatory bodies on the risk assessment of chemicals in the environment).

D5.4 Registration process

EUROTOX does not directly register individuals. To be an ‘ERT’ a toxicologist must be registered with an accepted National Registry that are members of EUROTOX. In principle, the registration process is a two stage process. Firstly, the National Registration board evaluates the applications of candidates according to a common process and admit successful candidates to the register. To be accepted to register, they must have met minimum education, training, experience and professional qualification requirements.

Applicants for ERT status request an application form from the National Register in the candidate’s country or preferred location. In order to qualify for registration, candidates have to demonstrate their current active professional participation in the field of toxicology. They must submit to the registering body:

- a CV containing relevant information such as details of scientific education, of post(s) held and of professional activities performed
- documentation of academic education before commencing training
- minimum accomplishments during training. To be considered a candidate for registration, in addition to basic academic training in science, an individual will have undertaken further theoretical and practical training. Candidates for registration will have documented their practical experience by at least five confidential reports, assessments, or publications in peer-reviewed scientific journals. It is regarded as essential that these papers demonstrate a high standard of critical ability and communication skills. Critical ability and communication skills can be documented further by a record of oral presentations and through authorship of written reviews and a dissertation/thesis
- in the event that uncertainty still exists (for example where experience has been claimed at institutes not known to the board) the registering board may request that in addition to the above, a formal examination (such as exams to achieve Diplomate of the American Board of Toxicology, Fellow of the Royal College of Pathologists (Toxicology)) be attempted
- recommendation letters should be submitted from two eminent toxicologists familiar with ERT requirements, who know the applicant personally, as well as their background and professional performance.

Secondly, upon request, EUROTOX will certificate these individuals as ERT without further evaluation. If candidates are not at the required level for ERT status, they are encouraged to take steps to amend their CV until it is compliant with the needs of ‘ERT’.
**Maintenance of Registration (Re-registration)**

Once registered, a toxicologist must re-affirm their registration credentials and illustrate their currency on a 5-yearly basis. As a minimum, to remain registered, a candidate must be working as a toxicologist, and must submit the following to the registering body:

- an updated CV containing relevant information, such as details of post(s) held and of professional activities performed during the past 5-year period of registration
- confirmation of professional toxicological activity in a responsible position by evidence such as, list of internal studies (with information on numbers, topics, methods used, branch of customers), list of publications, employment references, delegation to expert committees, teaching and mentoring
- documentation of continued professional awareness and education in toxicology, such as yearly attendance of educational courses and meetings, presentation of lectures or posters, teaching activities, publications, activities in expert committees and similar. These activities will comprise at least five working days per year.

**D5.5 Professional status and recognition**

When admittance is gained to a EUROTOX-approved National Register, they advise EUROTOX and the candidates name is placed on the ERT list. Successful candidates receive an ERT certificate, which will remain valid for as long as candidates remain in good standing with the chosen National Register.

**D5.6 Current status**

In 2006, approximately 1200 toxicologists were recognised as ERT registered (Table D5.1).

<table>
<thead>
<tr>
<th>Table D5.1</th>
<th>European Registered Toxicologist by country (2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country</strong></td>
<td><strong>Number of registrations</strong></td>
</tr>
<tr>
<td>Austria</td>
<td>17</td>
</tr>
<tr>
<td>Finland</td>
<td>43</td>
</tr>
<tr>
<td>France</td>
<td>131</td>
</tr>
<tr>
<td>Germany</td>
<td>152</td>
</tr>
<tr>
<td>Ireland</td>
<td>5</td>
</tr>
<tr>
<td>Italy</td>
<td>29</td>
</tr>
<tr>
<td>the Netherlands</td>
<td>274</td>
</tr>
<tr>
<td>Norway</td>
<td>62</td>
</tr>
<tr>
<td>Poland</td>
<td>In process</td>
</tr>
<tr>
<td>Spain</td>
<td>36</td>
</tr>
<tr>
<td>Switzerland</td>
<td>145</td>
</tr>
<tr>
<td>Turkey</td>
<td>In process</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>281</td>
</tr>
</tbody>
</table>

Adapted from: Fowler & Galli CL (2007) EUROTOX’s view regarding the role and training of certified European registered toxicologists (ERT), Tox Let., 168, 192–199
D5.7 Recognition of National Registers by EUROTOX

In order for a National Register to become recognised by EUROTOX, and be able to award ERT status, it has to have lodge and had accepted its criteria for registering toxicologists with an appropriate National Society (i.e., a member Society of EUROTOX). The National Society in turn, has to have lodged, and had accepted, these criteria with EUROTOX. An acceptable registration scheme has to satisfy EUROTOX’s legislative, executive and judicial aspects. The criteria for a participating national registering body to become recognised by EUROTOX are:

- only one registering body is accepted per country
- the national registry will notify significant changes of their criteria to the EUROTOX Registration Subcommittee
- legislative aspects (on application); an outline of what is expected from candidates, expressed in local terms. There is an ongoing responsibility for quality control of the assessment process
- executive aspects (on evaluation); a constitution and modus operandi for the assessment panel, whose task is to validate the individual’s candidature and application for registration
- Judicial Aspects (on appeal); an outline of what steps will be taken in the event that there is an objection to the panel’s decision.

The following countries have National Registers that are presently recognised by EUROTOX as setting the standard expected of ERT: Austria, Belgium, Bulgaria (in process), Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Poland, Spain, Switzerland, Turkey and United Kingdom.

D5.8 Templates for the assessment of skills and experience for registration

To promote harmonisation criteria and procedures and to serve as a self-evaluation tool for individuals seeking ERT recognition, EUROTOX have developed a number of professional templates, or profiles. The following four hypothetical professional profiles, summarised below (Table D5.2), are proposed as examples of individuals found at various levels of the criteria for ERT recognition. The templates aid the National Registers in determining registration status and help ensure a standardised approach to ERT recognition.
### Table D5.2 Summary of European Register of Toxicologists Templates

<table>
<thead>
<tr>
<th>Template</th>
<th>Current position</th>
<th>Degree</th>
<th>Years of experience</th>
<th>Number of publications or reports</th>
<th>Eligible for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christina</td>
<td>Student</td>
<td>MSc</td>
<td>3–4</td>
<td>3–5</td>
<td>National register</td>
</tr>
<tr>
<td>Jan</td>
<td>Researcher</td>
<td>PhD</td>
<td>5–10</td>
<td>10–20</td>
<td>European Register of Toxicologists</td>
</tr>
<tr>
<td>Hilary</td>
<td>Expert teacher</td>
<td>PhD</td>
<td>10–20</td>
<td>40–50</td>
<td>European Register of Toxicologists</td>
</tr>
<tr>
<td>Theophrastus</td>
<td>Risk assessor</td>
<td>PhD</td>
<td>≥20</td>
<td>≥100</td>
<td>European Register of Toxicologists</td>
</tr>
</tbody>
</table>

### D5.9 Oversight and governance of the European Register of Toxicologists by EUROTOX

In order to advance harmonization of the national registration procedures, including efforts to provide appropriate training opportunities to all ERT candidates, EUROTOX has promulgated the European Registered Toxicologist Guidelines for Registration*. The EUROTOX Guidelines for ERT constitute a framework that lay out the theoretical and practical training requirements for ERT registration (Section D5.3), criteria for the relationship of the National Registering body with EUROTOX, and the role of EUROTOX in the ERT. The Guidelines were updated in 2011 (from a 1995 version) and will be updated every 3 years by the EUROTOX Subcommittees for Education and Registration in close cooperation with national toxicology societies. The training and registration roles of EUROTOX in the ERT register are outlined below.

#### Training

EUROTOX seeks to identify training needs and encourage the provision of training through monitoring schemes designed to facilitate the registration of toxicologists. Although there are national differences in training, EUROTOX aims to ensure that the quality and performance of participating institutes, programs and teachers, and the standards and conduct of examination are harmonised as fully as possible. In doing this, individual scientists are required to reach or exceed a common acceptable standard as set out from time-to-time by EUROTOX.

The EUROTOX Education and Registration Subcommittees also have the role of evaluating the institutes, programs and faculty of toxicology courses before approval of accreditation for registration. Such evaluation is necessary for approval of accreditation of courses developed and organised by institutions other than EUROTOX and its member societies or representatives. Accreditation can be allotted to entire programs or several or single modules. Approvals are to be renewed after major changes.

* Taken from ‘ERT Guidelines for Registration’ EUROTOX (2011)
collaborative training schemes, more than one institute and country may contribute modules.

The EUROTOX Education and Registration Subcommittees/the EUROTOX secretariat maintain records of all curricula/course programs and modules accredited for registration. A list of all accredited courses and modules is shown on the webpage of EUROTOX.

Registration

In order to enforce harmonization of standards for registration the EUROTOX Registration Subcommittee has developed a template describing the criteria required for member nations seeking to set up their own national scheme within the EUROTOX guidelines. Existing registration bodies are encouraged to adapt their regulations in order to ensure concordance with the template.

EUROTOX is able to provide a range of support and assistance to National Registries that are seeking to set up their own national scheme. This includes:

- the EUROTOX Registration Subcommittee is able to provide information to National Registries, in order to facilitate participation between National Societies
- EUROTOX are able to provide observers who can assist in setting up of national schemes

Additionally, EUROTOX has a number of oversight and governance options available when overseeing the development and operation of National Registers. These include:

- a member of the newly approved National Registration Committee and Appeal’s Committee can be delegated by the EUROTOX Registration Subcommittee to assist in running the registration processes during the first 3 years
- the EUROTOX Registration Subcommittee can send observers to attend meetings of any or all National Registration Committees

If a national scheme or procedures exhibit serious deficiencies which are incompatible with the quality standards described in the guidelines, the EUROTOX Education and Registration Subcommittees can give advice on how to improve procedures/contents concerned. If improvements are rejected or performed insufficiently, the EUROTOX Executive Committee can decide to exclude registrations from the national body from EUROTOX registration.

Where there is no national registration body, EUROTOX also provides an advisory role for its individual members; for those not adhering to a National Society, the Registration Subcommittee can guide applicants to an appropriate registry.
D5.10  Promotion and awareness
The main documentation and Guidelines for ERT are available on the EUROTOX website. Each National Registering body makes links to this on their websites and promotional material.